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The Invasive Plants of North America—A Primary Analysis

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Abstract：Based on various reports both in print and online，533 species have been selected as invasive species or potential invasive plants from North America. In order to better understand their invasive nature，the primary data on these invasive or potential invasive plants in North America are reported，including the composition of plant taxa，their habits，invasive origin，introduced time，meanings of introduction，most invasive habitats，invasive grades，and distribution in each states/provinces of North America.

Key words：Invasive plants；North America；Analysis
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Introduction

North America north of Mexico is the youngest continent and also the one that has seen the most immigration in the world，not only in terms of humans from worldwide，but also in terms of cultivated plants were introduced along with them. These plants were introduced either intentionally or accidentally in various ways，ever since the first immigrants arrived from Europe in the late 1600s. However，most of these invasive plants were mainly imported during the past two hundred years between 1800s－1900s. They were not considered invasive species until it was too late，when major economical and ecological damage and influence on settled land occurred broadly and significantly.

Most of the data on these invasive plants of North America north of Mexico is spread over various publications worldwide and different documents online（Lowe *et al*.，2000；Mack，2003；Timmons，2005），but there is no report on whole how，when，where they were introduced in history and what is being caused today (Rejmanek，2005；Sutherland，2004). The Federal Interagency Committee for the Management of Noxious and Exotic Weeds (1998) stated that the numbers of native and nonnative weeds in US has up to 1365 nonnative species，65%，compared to 735 native species，35%. However，there are 46789 weeds species worldwide，70% of all weed species，as opposed to 2083 weeds species in US，which is 30%. Among North America North of Mexico，California，Hawaii，Illinois，New York and Pennsylvania are the highest states of nonnative species. Estimated Federal Agency Expenditures on Invasive Plants（FY 1997）recorded General Weeds Research（ARS，FS，USGS）costing more than ＄18 million. Weed Bio-control (ARS) recorded more than ＄7 million，the National Forest System (FS) recorded more than ＄4 million，Biocontrol Projects（APHIS）recorded more than ＄2 million，and the Witchweed Eradication (APHIS) recorded about ＄2 million，aside from community damage (both physical and ecological) or loss of various plant compositions (Jenkins and Pimm，2003；Huston，2004；Levine，2000；Lohrer and Whitlatch，2002；Mack *et al*.，2000；Maron *et al*.，2004；McKinney，2004；Peterson and Vieglais，2001；Pimental *et al*.，2000；Pimental *et al*.，2005；Pine，2002；Pysek *et al*.，2002)；in some cases，it is very difficult to assess or estimate（White and Schwarz，1998；Zalba *et al*.，2000).

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Materials

Based on various reports both in print (Allen and Humble, 2002; Barton *et al.*, 2004; Mack *et al.*, 2000) and documents online (see below for details), a total of 533 species have been collected as Invasive Plants (see appendix for detail), including those notorious invasive species, those with small area invasiveness or those with the possibility to become invasive in the future (Fox *et al.*, 2003; Goodwin *et al.*, 1999; Higgins *et al.*, 1999). The concept of invasive cited here mainly is taken from the Executive Order 13112 of February 3, 1999, signed by President William Clinton (Presidential Documents 1999), with several related documents or reports (Huenneke *et al.*, 1988; Lonsdale, 1999; National Invasive Species Council, 2006; Ricciardi and Cohen, 2007; Richardson *et al.*, 2000). The online resources for this analysis includes, but not limited, to following①:

1, Weeds Gone Wild: Alien Plant Invaders of Natural Area (http://www.nps.gov/plants/alien/)

2, Invasive Plants of the Eastern United States: identification and control (http://www.invasive.org/eastern/)

3, Southeast Exotic Pest Plant Council Invasive Plant Manual (http://www.se-eppc.org/manual/index.html)

4, Invasive Plants of California′s Wildlands, C. C. Bossard, J. M. Randall & M. C. Hosbovsky, University of California Press, 2000.

5, Invasive Plants of Natural Habitats in Canada (http://www.cws-scf.ec.gc.ca/publications/inv/cont_e.cfm)

6, Florida Exotic Pest Plant Council′s 2005: List of Invasive Species (http://www.fleppc.org/list/05List.htm).

7, Invasive Plants of the Thirteen Southern States, J. H. Miller, E. B. Chambliss & C. T. Bareron at (http://www.invasive.org/seweeds.cfm, 2009)

8, Center for Invasive Plant Management-Worst Weeds in the West (http://www.weedcenter.org/inv_plant_info/worst.html)

9, Hawaii′s Most Invasive Horticultural Plants of Hawaii-Pacific Weed Risk Assessment by Curt Daehler (University of Hawaii) and Julie Denslow (USDA Forest Service) at (http://www.state.hi.us/dlnr/dofaw/hortweeds/)

10, Plant Conservation Alliance′s Alien Plant Group Least Wanted-Fact Sheets (http://www.nps.gov/plants/ALIEN/fact.htm)

11, Global Invasive Species Database (http://www.issg.org/database/welcome/)

12, The Global Invasive Species Team (http://www.invasive.org/gist/index.html)

13, National Invasive Species Information Center-USDA NAL (http://www.invasivespeciesinfo.gov/index.shtml)

14, Nature Serve (http://www.natureserve.org/explorer/index.htm#)

And printed resources are mainly from, but not limited, following:

15, Invasive Plants: Western North America, Center for Invasive Plant Management, James Kavanagh, 2003, 12 pages, Waterford Press Ltd.

16, World Weeds-natural histories and distribution, LeRoy Holm, Jerry Doll, Eric Holm, Juan V. Pancho, & James P. Herberger, 1997, 1129 pages, John Wiley & Sons Inc.

17, Invasive Species in the Pacific Northwest, P. D. Boersma, S. H. Reichard, & A. N. Van Buren, 2006, 276 pages, University of Washington Press.

18, Synthesis of the North America Flora (CD edition), John T. Kartesz and Christopher A. Meacham.

19, Manual of Cultivated Trees and Shrubs, Alfred Rehder, 2 ed, 1940, 996 pages, The Macmillan Co.

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① Most of the data was collected during 2005－2009 when the author worked at the Brooklyn Botanic Garden, but not all of these websites could be accessed from anywhere in the world for various reasons.

20, Manual of Woody Landscape Plants, Michael A. Dirr, ed. 5, 1998, 1187 pages, Stipes Publishing, L. L. C.

Methods:

Following standards were used in this report:

1, Native areas from whence the invasive plants came were divided into the following categories, through these were different in geography (Sax, 2001; Stohlgren *et al.*, 1999; Telfer *et al.*, 2002): Pantropics, Old World: Tropic & Temperate, Eurasia, Europe, Asia (e, s, c, w, n), Africa, Austrasia, Australia, New Zealand; and New World: Central America, South America, Native in North America: s, se, e, n, ne, nw, s, sw.

2, Introduced Time: Plant immigrants in North America arrived from Europe with the first human immigrants, mostly products of the intense incentive early colonists felt to transplant European agriculture into the western Hemisphere (Mack, 2003; McKinney, 2002). The invasive plants into North America were divided into following periods: Before colonial time, Colonial time, Detail time by year, Before certain time by year, and n/a: no data available.

3, Means of Introduction were divided into two major sources: Intentionally, but with different means of introduction: by agricultural introduction, forest, horticultural (landscape, ornament, bonsai, etc; Richard and White, 2001; McKinney, 2002), food (culinary, vegetable, drink, etc.), grass, environmental industry (sand, erosion soil control, etc), medicine (herbs, etc.), fiber industry, forage, crops (oil crop, etc.); and Accidentally: introduced with boat, ballast, input via sea way, etc., with food, seeds, plants, etc., with peoples, immigration, etc., with goods (porcelain,. etc), not applicable: native to north America, and unknown.

4, The Habitat of Invasive Plants in North America is divided into following: In agriculture (farm land, cultivated field, vegetable field, etc.), aquatic (water way, canal, river, reservoir, lakes, wetland, etc.; Houlahan and Findlay, 2004), desert (arid, dry or semi-wild area, especially in sw North America), forest (margin, under shade, or shine, etc. (Richardson, 1998), landscape (gardens, nurseries, arboreta, turf, etc.), pastures (grassland, meadows, forage, etc.), shoreline (beach, sand dune near beach, etc.), urban (residential area, waste area, roadside or disturbed area, etc.), wetland (marsh, bogs, rice field, ponds, etc.), and in the wild (more than 3 various habitats combination of above but without one major identifying habit; McKinney, 2002).

5, Invasive Grades: Following five grades has been used in this paper. I: most aggressive and causing the most economic and environmental losses (Pimental, 2000; Pimental *et al.*, 2005), such as *Euphorbia esula* in midwest North America, and *Pueraria montana* in southeast USA; II: aggressive with ecologic and economic loss, but less largely or broadly, such as *Centaurea* (Asteraceae), *Tamarix* (Tamaricaceae), etc; III: common weeds or unwelcome trees or shrubs, with less or not so evident damage, such as *Agrostic* (Poaceae), *Artemisia* (Asteraceae), etc.; IV: locally aggressive, especially in HI, FL, PR, VI, and CA etc; V: invasive occasionally, rarely, sparsely, scattered, or once invasive or wide spread but now fewer or less invasive, or no invasive yet but with potential in the future (including those on the watching list).

6, Plants Habits: Tree, shrub, annual, biennial, perennial, vine (including both woody and herbal), parasite (including semi-parasite), aquatic (including annual, biennial and perennial, and wetland etc) have been used as usual. However, some species may have more than one characteristic such as both biennial and perennial so the total for individual characteristics may be more than the total number in statistics.

7，Distribution data in the states and provinces of North America were mainly collected from the online resources from the USDA Plant Database (http：//plants. usda. gov/)，and NatureServe. Org (http：//www. natureserve. org/) since September 2005，but there was also some information collected from local reports and online resources.

Analysis

Based on above data and sources，following analysis has been carried in this work：

1，Taxa

Total 533 species of invasive plants in North America (see appendix) has been selected in this work，and they are represented by following characters.

a，Largest Families：Among the total invasive plants of 533 species in North America，following families are represented by the largest taxa (more than 9 species)：Poaceae 188 species，Asteraceae 54 species，Fabaceae 44 species，Rosaceae 39 species，Brassicaceae 18 species，Lamiaceae 14 species，Polygonaceae 11 species，Solanaceae 11 species，and Scrophulariaceae 10 species.

b，Largest Genera：Among the total invasive plants of 533 species，following genera are represented by the largest taxa (more than 3 species)：*Centaurea* 10 species (Asteraceae)，*Solanum* 8 species (Solanaceae)，*Bromus* 7 species (Poaceae)，*Lonicera* 7 species (Caprifoliaceae)，*Cuscuta* 6 species (Cuscutaceae)，*Pennisetum* 6 species (Rosaceae)，*Ligustrum* 5 species (Oleaceae)，*Rosa* 5 species (Rosaceae)，*Tamarix* 5 species (Tamaricaceae)，*Carduus* 4 species (Asteraceae)，*Cyperus* 4 species (Cyperaceae)，*Eragrostis* 4 species (Poaceae)，*Lolium* 4 species (Poaceae)，*Poa* 4 species (Poaceae)，*Polygonum* 4 species (Polygonaceae)，*Rubus* 4 species (Rosaceae)，and *Setaria* 4 species (Poaceae).

2，Most Habits

Among the total invasive plants of 533 species (644 calculated since some taxa with more than one habits)，following habits are represented by most taxa：Perennial 212 (including 5 ferns)，annual 143，shrub and subshrub 95，trees 77，vine 45 (including herb vine 27，and woody vine 18)，biennial 36，aquatic 28，and semi-parasitic 8.

3，Origin

Among the total invasive plants of 533 species，following origin are represented by most taxa：**Asia** 135 species (Caucasus to Central Asia 2，W Asia 1，S & SE Asia 8，Central Asia 1，East & North Asia 2，East Asia 62，including 10 from China，2 from Japan，and 1 from Himalaya only)，**Eurasia** 97 species，**Europe** 73 species，**Old World** 45 species (Old Tropics 17 and Old Temperate 5)，**Africa** 41 species (including 14 from S Africa，and 2 from Madagascar only)，**Tropical Asia** 40 species，**Australia** 14 species (including New Zealand 1)，**Mediterranean** 35 species，**North Temperate** 11，and **Both Hemispheres** 5 (including 1 from Pantropics，and 3 from Tropics).

However，the number of invasive plants from the New World is very small，especially compared with the Old World. They include 4 species from the New World，22 species from Central America (Mexico 3，Central & South America 9)，23 species from South America，17 species from Tropical America (Central & North America 1，New Tropics 2)，and 16 species from North America itself (including E & N America 7；McKinney，2002).

4，Time

Since the discovery of the Americas，nearly 400 years have passed from the time the first invasive plant was brought into North America by human activities. However，most of them were introduced during past two hundreds years (Timmons，2005). Among the total 533 species of invasive plants，129 species were introduced during 1800—1899，and 134 species were during 1900 — 1999. However，during the early 200 years from 1599—1799, the percentage of invasive plants introduced into North America is less than 25, with about 94 species only, besides 141 unknown and 36 not applicable (native).

5, Meanings of Introduction

There are basically two major ways for the invasive species to find their way into North America from their original place or native distributed area: intentionally or accidentally. Our analysis shows that the intentional introduction is represented by about 2/3 of total invasive species, and accidental introduction is by about 1/3, represented by 440 species and 220 species respectively (more than 533 used because some species has more than one purpose of introduction, such as horticulture and medicine together; McKinney, 2002). Among these purposes, following objects are the most: 243 species as horticultural, 49 species as forage, 44 species as medicinal, 30 species as industrial, 20 species as food, 12 species as fruits, forest and environment each, 7 species as vegetable, 5 species as crops, 4 species as pastures, and 2 species as aquatic trade. And among those accidently: 112 species with seeds, 82 species with people, 14 species with aquatics, 4 species with food, 3 species with medicine, 2 species with animals, 2 species with industry, and 1 species with forage, besides 36 species not applicable and 15 species whose origins are unknown.

6, Grades

According to both economic and ecological damage caused by invasive plants in North America, following 5 grades have been classified:

Grade 1: Total 12 species (2.25%), with the most and the biggest damage, especially with a great amount of financial loss or money spent to control or remove them, and they are: *Aegilops cylindrica* (Poaceae), *Ailanthus altissima* (Simaroubaceae), *Centaurea stoebe* ssp. *micranthos* (Asteraceae), *Cirsium arvense* (Asteraceae), *Eichhornia crassipes* (Pontederiaceae), *Euphorbia esula* (Euphorbiaceae), *Hydrilla verticillata* (Hydrocharitaceae), *Lythrum salicaria* (Lythraceae), *Myriophyllum spicatum* (Haloragaceae), *Pueraria montana* (Fabaceae), *Reynoutria japonica* (Polygonaceae). Among them, 4 species are as aquatic (including wetland), 3 species as pastures, 2 species as agriculture and urban each, and 1 species as forest. Another interesting factor is that most of them (8/12 species) have asexual reproduction or even both sexual and asexual.

Grade 2: Total 33 species (6.18%), with great financial losses incurred from controlling or removing them, or great ecological damage, and they are: *Acroptilon repens* (Asteraceae), *Albizia julibrissin* (Fabaceae), *Alternanthera hiloxeroides* (Amaranthaceae), *Avena fatua* (Poaceae), *Carduus nutans* (Asteraceae), *Celastrus orbiculatus* (Celastraceae), *Centaurea diffusa* (Asteraceae), *Centaurea jacea* (Asteraceae), *Cirsium vulgare* (Asteraceae), *Conium maculatum* (Apiaceae), *Convolvulus arvensis* (Convolvulaceae), *Echinochloa crus-galli* (Poaceae), *Egeria densa* (Hydrocharitaceae), *Elaeagnus angustifolia* (Elaegnaceae), *Fallopia aubertii* (Polygonaceae), *Heracleum mantegazzianum* (Apiaceae), *Myriophyllum aquaticum* (Haloragaceae), *Onopordum acanthium* (Asteraceae), *Panicum repens* (Poaceae), *Pastinaca sativa* (Apiaceae), *Phragmites australis* (Poaceae), *Salvinia molesta* (Salviniaceae), *Setaria faberi* (Poaceae), *Solanum viarum* (Solanaceae), *Sorphum halepense* (Poaceae), *Taeniatherum caput-medusae* (Poaceae), *Tamarix chinensis* (Tamaricaceae), *Tamarix gallica* (Tamaricaceae), *Tamarix parviflora* (Tamaricaceae), *Tamarix ramosissima* (Tamaricaceae), *Thlaspi arvense* (Brassicaceae), *Tripleurospermum perforate* (Asteraceae), *Xanthium spinosum* (Asteraceae). Among them, 14 species are as agriculture, 9 species as aquatic (including wetland), 5 species as pastures, 3 species as urban, and 1 species as horticulture and wild each.

From grade 1 and 2, we could see that agriculture has the most invasive species by 16 species in total, aquatic with 13 species, pastures with 8 species, urban with 5 species, forest, horticulture and wild with only 1 species each. They are mainly in Asteraceae by 9 species and Poaceae by 8 species, which occupied more than one third of total 45 species in grade 1 and 2.

Grade 3: Most of the species are weeds or becoming weeds, and with less financial and ecological damage, and they are represented by 226 species (42.32%, see appendix).

Grade 4: Less damage or partial damage both economically and ecologically, especially compared with the whole of North America, but largely or seriously from a local standpoint or in small areas, such as south Florida or Hawaii, et al. They are represented by 90 species (16.85%, see appendix).

Grade 5: No evident damage has been proved but with potential invasiveness possible, especially from an ecological standpoint. They are represented by 173 species (32.40%, see appendix).

7, Most Invasive Habitats

As each plant has a best growth condition where they could perform better than others, so do invasive plants as well. Among the total invasive plants of 533 species in North America, the major habitats are represented by Urban area (where the human activity has been or could been reached; McKinney, 2002) with 125 species, Agriculture with 116 species, Horticulture with 106 species, Aquatic and Wetland with 62 species, Forests with 56 species, Pastures with 49 species, Shorelines with 10 species, Wild with 7 species, and Desert with 3 species.

8, Distribution by States and Provinces

The most invasive species of total 533 invasive plants in North America by States or Provinces are mainly in the east coast, with FL by 311 species, VA 299 species, NY 291 species, PA 289 species, TX 283 species, MA 282 species, MD 282 species, NC 282 species, NJ 280 species besides CA 297 species in west coast; more invasive plants in next level represented by GA 273 species, IL 275 species, LA 263 species, OH 261 species, AL 259 species, CT 252 species, KS 253 species, KY 256 species, OR 255 species, SC 256 species, TN 252 species, ON 251 species, MI 250 species; moderate by IN 241 species, WA 241 species, MO 240 species, WV 235 species, DE 233 species, MS 228 species, AR 224 species, HI 222 species, ME 206 species, IA 200 species, VT 200 species, DC 218 species, QC 212 species, WI 210 species, and by NH 199 species, UT 198 species, RI 197 species, BC 193 species, ID 191 species, NM 187 species, NE 185 species, MT 183 species, OK 182 species, CO 182 species, AZ 181 species, NS 178 species, MN 176 species, NB 172 species, and the low by WY 155 species, NV 154 species, SD 147 species, MB 133 species, ND 138 species, PE 126 species, SK 126 species, AB 123 species, NF 120 species, and lowest by AK 84 species, LB 40 species, NT 44 species, and YT 56 species.

Summary

The most troublesome and aggressive **invasive plants** are those foreign or alien species that have invaded the North American continent from regions elsewhere in the world. By comparison, fewer and less aggressive invasive plants are native species. Foreign species are among the most conspicuous and abundant species in places that are heavily affected by the humankind, such as urban, agriculture, horticulture etc, including the farming regions of the American heartland. The aggressiveness often comes from the development area of crops, and the roadside and waste-ground ruderal invasive are mostly of the Old World origin. Moreover, most of the ornamental species in parks and gardens are alien. In other words, the showiest and most conspicuous plants in the flora are frequently those whose evolutionary development occurred elsewhere in the world, but whose arrival in North America was instigated by the activities of humankind and whose presence in the flora is maintained by continuing human activities (Stuckey and Barkley, 1993; McKinney, 2002).

However, more work either from taxonomic view (Boufford, 2001; Buckley *et al.*, 2003; Daehler, 1998; Delisle *et al.*, 2003; Huebner, 2003; Ma, 2010; Pysek *et al.*, 2004), in deep understanding of their invasive mechanism (Callaway and Aschehoug, 2000; Chong *et al.*, 2001; Corbin and D′Antonio, 2004), or predicting invasive plants (Reichard and Hamilton, 1997; Lockwood *et al.*, 2001), certainly should be done in order to better understand them and control them before **it is** too late (Carruthers, 2004; McKinney, 2002).

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Appendix：Invasive Plants of North America

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Abrus precatorius	Crab′s-eye	Fabaceae	woody vine	Pantropics/Asia	＜1932
Acacia auriculiformis	Ear-leaf Acacia	Fabaceae	tree	Austrasia	＜1932
A. confusa	Formosan Koa	Fabaceae	tree	Tropical Asia	1915
A. mearnsii	Australian Acacia	Fabaceae	tree，shrub	Australia	＜1911
Acer platanoides	Norway Maple	Aceraceae	tree	Europe，West Asia	1756
Acinos arvensis	Mother-of-thyme	Lamiaceae	annual，perennial	Europe	unknown
Acroptilon repens	Russian Knapweed	Asteraceae	perennial	Eurasia	1900s
Adenanthera pavonina	Circassian Bean	Fabaceae	tree	Tropical Asia	n/a
Aegilops cylindrica	Jointed Goatgrass	Poaceae	annual	Europe，West Asia	late 1800s
Aegopodium podagraria	Goutweed	Apiaceae	perennial	Eurasia	colonial time
Aesculus hippocastanum	Horse Chestnut	Hippocastanaceae	tree	Europe	1576
Aethusa cynapium	Fool′s Parsley	Apiaceae	annual	Eurasia	unknown
Agave sisalana	Sisal Hemp	Agavaceae	shrub	Mexico	1900s
Ageratina adenophora	Eupatory	Asteraceae	shrub	Mexico	1900s
Agropyron cristatum	Crested Wheatgrass	Poaceae	perennial	Eurasia	1906
Agrostemma githago	Common Corncockle	Caryophyllaceae	annual	Europe	early 1900s
Agrostis capillaris	Colonial Bentgrass	Poaceae	perennial	Eurasia	n/a
A. gigantea	Black Bentgrass	Poaceae	perennial	Europe	n/a
Ailanthus altissima	Tree of Heaven	Simaroubaceae	tree	China	1784
Ajuga reptans	Carpet-bugel	Lamiaceae	perennial	Eurasia	n/a
Akebia quinata	Chocolate Vine	Lardizabalaceae	woody vine	East Asia	1845
Albizia julibrissin	Silk Tree	Fabaceae	tree	Asia/China	1745
A. lebbeck	Woman′s Tongue	Fabaceae	tree	Australia，Tropical Asia	1880s
Alhagi maurorum	Camelthorn	Fabaceae	shrub	Central Asia	1915
Alliaria petiolata	Garlic Mustard	Brassicaceae	annual，biennial	Eurasia	1868
Allium vineale	Field Garlic	Liliaceae	perennial	Old World Temperate	＜1892
Alnus glutinosa	European Alder	Betulaceae	tree	Old World Temperate	colonial time
Alopecurus myosuroides	Pacific Meadow Foxtail	Poaceae	annual	Europe and Mediterranean	n/a
Alstonia macrophylla	Deviltree	Apocynaceae	tree	Tropical Asia	＜1949
Alternanthera philoxeroides	Alligatorweed	Amaranthaceae	perennial aquatic	South America	1935
A. sessilis	Sessile Chaff-flower	Amaranthaceae	perennial semi-aquatic	Tropics	not apply
Amaranthus retroflexus	Redroot Pigweed	Amaranthaceae	annual	Central & East N AM	not apply
A. viridis	Slender Amaranth	Amaranthaceae	annual	New World	not apply
Ambrosia artemisiifolia	Ragweed	Asteraceae	annual	North America	not apply
A. tomentosa	Skeleton-leaf Bursage	Asteraceae	perennial	n，nw & sw North America	not apply
Ammophila arenaria	European beachgrass	Poaceae	perennial	Europe，North Africa	1869
Ampelopsis heterophylla	Porcelain Berry	Vitaceae	woody vine	East Asia	1870
Anthriscus sylvestris	Cow Parsley	Apiaceae	annual/biennial	Mediterranean，c Asia	colonial time?
Antigonon leptopus	Love Chain	Polygonaceae	perennial vine	Central America	unknown
Aptenia cordifolia	Red apple	Aizoaceae	perennial	South Africa	unknown
Aralia elata	Japanese Angelica-Tree	Araliaceae	tree	East Asia	1830
Arctium minus	Lesser Burdock	Asteraceae	biennial	Eurasia	colonial time
Ardisia crenata	Coral Ardisia	Myrsinaceae	shrub	Tropical Asia	1900s
A. elliptica	Shoebutton Ardisia	Myrsinaceae	shrub	Tropical Asia	1900s
Arenaria serpyllifolia	Thyme-leaf Sandwort	Caryophyllaceae	perennial	Eurasia	unknown
Aristolochia littoralis	Elegant Dutchman′s Pipe	Aristolochiaceae	perennial vine	Brasil	unknown
Arrhenatherum elatius	Tall Oatgrass	Poaceae	perennial	Europe	1900s
Artemisia absinthium	Common Wormwood	Asteraceae	perennial	Old World Temperate	1841
A. vulgaris	Mugwort	Asteraceae	perennial	Eurasia	colonial time
Arthraxon hispidus	Joint-head Arthraxon	Poaceae	annual	East & South Asia	1930s
Arundo donax	Giant Reed	Poaceae	perennial	Old World Temperate	1800s
Asclepias curassavica	Scarlet Silkweed	Asclepiadaceae	subshrub，perennial	Tropical America	unknown
Asparagus densiflorus	Sprenger′s asparagus fern	Liliaceae	perennial	South Africa	unknown
Asphodelus fistulosus	Onion-weed	Liliaceae	annual，perennial	Mediterranean	1930s

1

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
horticulture	5	forest，urban，wild	AL，AR，FL，GA，HI，PR，VI.
horticulture	5	forest，urban，wild	FL.
environment	5	forest，urban，wild	HI.
forest	4	pastures，wetland，urban	CA，HI.
horticulture	3	forest，urban，wild	CT，DC，DE，ID，IL，IN，KY，MA，MD，ME，MI，MN，MT，NC，NH，NJ，
w/seeds? w/people?	3	agiculture，urban，wild	CT，ID，KY，MA，MD，ME，MI，MO，MT，NJ，NY，OH，PA，VA，VT，
w/seeds	2	agriculture，pastures，urban	AR，AZ，CA，CO，IA，ID，IL，IN，KS，KY，MI，MN，MO，MT，ND，NE，
horticulture	5	forest，urban，wild	FL，HI，PR，VI.
w/seeds	1	agriculture，urban，wild	AL，AR，AZ，CA，CO，IA，ID，IL，IN，KS，KY，LA，MI，MO，MT，ND，
food，medicine，horticulture	3	landscape，urban，wild	CT，DC，DE，GA，ID，IL，IN，KY，MA，MD，ME，MI，MN，MO，MT，NC，
horticulture	3	horticulture，urban，wild	CT，IA，IL，IN，MA，MD，ME，MI，MN，NC，NJ，NY，OH，OR，PA，RI，
medicine，w/people?	3	urban，agriculture，horticulture	AL，CT，DE，IL，IN，KY，MA，ME，MI，MN，NJ，NY，OH，PA，RI，WI，
fiber industry	5	urban，horticulture，wild	FL，HI，PR，VI.
horticulture	4	agriculture，horticulture，urban	CA，HI.
forage	5	pastures，agriculture，urban	AK，CA，CO，CD，DE，IA，ID，IL，IN，KS，KY，MA，MI，MN，MT，ND，
w/seeds	6	horticulture，urban，wild	AK,AL,AR,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,
forage	3	pastures，agriculture，wetland	AK，AL，AR，CA，CT，DC，ID，IL，IN，KY，MA，MD，ME，MI，MO，MS，
forage	3	agriculture，urban，horticulture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture	1	urban，forest，wild	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，
horticulture，medicine	3	agriculture，horticulture，urban	AL，AR，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，ME，
horticulture	4	horticulture，urban，wetland	CT，DC，DE，GA，IL，IN，KY，LA，MA，MD，MI，NC，NJ，NY，OH，
horticulture	2	urban，wetland，wild	AL，AR，AZ，CA，DC，DE，FL，GA，IL，IN，KY，LA，MA，MD，MO，
horticulture	4	agriculture，forest，urban	CA，FL，HI，TX，PR，VI.
w/seeds	4	wetland，urban，wild	AZ，CA，CO，ID，NM，NV，TX，UT，WA.
food，medicine	3	wetland，urban，forest	AK，AR，CO，CT，DC，DE，GA，IA，ID，IL，IN，KS，KY，MA，MD，ME，
food? vegetable? w/others?	5	pastures，agriculture，urban	AK，AL，AR，CA，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，
horticulture	3	horticulture，urban，wetland	CT，DC，DE，IA，IL，IN，KS，MA，MI，MN，MO，NJ，NY，OH，PA，TN，
w/seeds?	5	agriculture，urban，wild	AL，CA，DC，DE，KS，KY，LA，MA，MD，ME，MI，MS，NC，NJ，NM，
forest	5	forest，urban，wild	FL，HI.
w/boat	2	aquatic，wetland，urban	AL，AR，CA，FL，GA，IL，KY，LA，MS，NC，SC，TN，TX，VA，PR.
not apply	4	wetland，urban，horticulture	AL，AR，FL，GA，HI，LA，MD，MS，SC，TX，PR，VI.
not apply	3	agriculture，urban，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
not apply	3	urban，agriculture，wild	AL，AZ，AR，FL，GA，HI，LA，MA，MI，MS，NC，NM，NY，OK，PA，
not apply	3	urban，agriculture，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
not apply	3	agriculture，pastures，wild	AZ，CO，IA，ID，IL，KS，MO，MT，ND，NE，NM，NN，SD，TX，UT，WI，WY.
environment	4	shoreline	CA，HI，MD，OR，PA，WA；BC，NS.
horticulture	3	urban，wetland，wild	CT，DC，DE，GA，IA，IL，KY，MA，MD，MI，NC，NH，NJ，NY，OH，PA，
medicine? w/seeds?	4	urban，pastures，wild	CT，ID，IL，MA，MD，ME，MI，MN，NJ，NY，OH，OR，PA，RI，TN，VA，
horticulture	5	forest，urban，wild	AL，FL，GA，HI，LA，MS，SC，TX，PR，VI.
horticulture	5	horticulture，urban，wetland	CA，FL，OR.
horticulture	5	urban，forest，wild	CT，IL，MA，MI，NH，NJ，NY，PA，WI；ON.
w/food? w/peoples?	3	urban，pastures，agriculture	AL,AR,AZ,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA, MA,MD,ME,MI,
horticulture	4	forest，wetland，urban	FL，HI，LA.
horticulture	4	forest，wetland，urban	FL，HI.
w/seeds? w/people?	3	horticulture，urban，agriculture	AL,AR,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
horticulture	5	horticulture，urban，wild	FL，HI，PR，VI.
horticulture	5	pastures，wetland，urban	AK，AL，AR，AZ，CA，CO，CT，DC，DE，GA，HI，IA，ID，IL，IN，KS，KY，MA，
medicine	3	agriculture，horticulture，urban	CO，CT，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，MT，NC，
medicine	3	horticulture，agriculture，urban	AK，AL，CA，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，LA，MA，
w/people? w/seeds?	3	agriculture，urban，wetland	AL，AR，DC，DE，FL，GA，HI，IL，IN，KS，KY，LA，MA，MD，MO，MS，
w/people? w/seeds?	3	wetland，urban，horticulture	AL，AR，AZ，CA，FL，GA，HI，IL，KS，LA，MD，MO，MS，NC，NM，NV，
horticulture	5	horticulture，urban，agriculture	CA，FL，HI，LA，PR，TN，TX，VI.
horticulture	5	horticulture，urban，forest	CA，FL，HI.
horticulture	5	horticulture，urban，wild	CA，NM，TX.

NY, OH, OR, PA, RI, TN, VA, VT, WA, WI, WV; BC, NB, NS, ON, PE, QC.
WA, WI, WV, WY; BC, ON, PE, QC.
NM, NV, OH, OK, OR, SD, TX, UT, WA, WI, WY; AB, BC, MB, ON, SK.

NE, NM, NV, NY, OH, OK, OR, PA, SD, TN, TX, UT, VA, WA, WV, WY.
NH, NJ, NY, OH, OR, PA, RI, SC, TN, VA, VT, WA, WI, WV; BC, MB, NB, NS, ON, QC, SK.
VA, WV; BC, NB, NS, ON, QC.
WV; NB, NS, ON, QC.

NE, NH, NM, NV, NY, OK, OR, SD, TX, UT, WA, WY; AB, BC, MB, NS, NT, ON, QC, SK, YT.
ME,MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,VA,VT,WA,WI,WV,WY; BC,MB,NB,NF,ON,PE,QC,SK.
MT, NC, ND, NH, NJ, NV, NY, OH, OR, PA, RI, TN, UT, VA, VT, WA, WV, WY; BC, NB, NF, NS, ON, PE, QC, YT.
MN,MO,MS,MT,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
KY, LA, MA, MD, ME, MI, MO, MS, NC, NE, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, TN, TX, UT, VA, WA, WI, WV; ON, QC.
MI, MS, NC, NJ, NY, OH, OR, PA, RI, SC, TN, TX, UT, VA, VT, WA, WI, WV; BC, NF, NS, ON, QC.
PA, RI, SC, VA, WV.
MS, NC, NJ, NM, NY, OH, OK, PA, SC, TN, TX, UT, VA, WV.

MI, MN, MO, NC, ND, NE, NH, NJ, NY, OH, OK, OR, PA, SC, TN, UT, VA, VT, WA, WI, WV; BC, NB, NS, ON, QC.
MD, ME, MI, MO, MS, MT, NC, NE, NJ, NY, OH, OK, OR, PA, RI, SC, TN, VA, VT, WA, WI, WV; BC, ON, QC.
VT, WI; NS, ON.
NY, OH, OR, PA, RI, SC, TX, VA, WA, WV; MB.

MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK.
SC, TN, TX, VA, VI
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK.

RI, VA, WI.
VT, WA, WI; BC, NB, NF, NS, ON, PI, QC.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.

MI,MN,MO,MS,MT,NC,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY;AB,BC,MB,NB,NS,ON,PE,QC,SK.

MD, ME, MI, MN, MO, MS, MT, NC, NE, NH, NJ, NM, NV, NY, OH, OR, PA, RI, SD, TN, UT, VA, VT, WA, WI, WV, WY; BC, NB, NF, NS, ON, QC.
ND, NE, NH, NJ, NY, OH, OR, PA, RI, SC, SD, TN, UT, VT, WA, WI, WY; AB, BC, MB, NB, NF, NS, ON, PE, QC, SK.
MD, ME, MI, MN, MO, MT, NC, NH, NJ, NY, OH, OR, PA, RI, SC, TN, VA, VT, WA, WI, WV; AB, BC, MB, NB, NF, NS, ON, PE, QC, SK.
NC, NJ, NY, OH, OK, OR, PA, SC, TN, TX, VA, WV.
OK, SC, TN, TX, UT, VA, WV.

Continuous table 2

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Asystasia gangetica	Chinese-violet	Acanthaceae	perennial vine	Old Tropics	1925
Atriplex semibaccata	Australian Saltbush	Chenopodiaceae	perennial，subshrub	Australia	1901
Avena fatua	Wild Oats	Poaceae	annual	Eurasia	unknown
A. sterilis	Animated Oats	Poaceae	annual	Mediterranean	unknown
Barbarea vulgaris	Yellow Rocket	Brassicaceae	perennial	Eurasia	unknown
Bassia hyssopifolia	Five-hook Bassia	Chenopodiaceae	annual	Eurasia	1915
Bauhinia variegata	Orchid-tree	Fabaceae	tree	East & South Asia	＜1900
Begonia cucullata	Club Begonia	Begoniaceae	perennial	South America	unknown
Berberis thunbergii	Japanese Barberry	Berberidaceae	shrub	East Asia	1864
B. vulgaris	Common Barberry	Berberidaceae	shrub	Europe	colonial time?
Berteroa incana	Hoary-alyssum	Brassicaceae	annual，biennial，perennial	Eurasia	unknown
Betula pendula	Silver Birch	Betulaceae	tree	Europe	unknown
Bischofia javanica	Bishopwood	Euphorbiaceae	tree	Tropical Asia	1900s
Brassica rapa	Field Mustard	Brassicaceae	annual，biennial	Eurasia	colonial time?
B. tournefortii	Sahara mustard	Brassicaceae	annual	Mediterranean	1927
Bromus catharticus	Rescue Grass	Poaceae	annual，biennial	South America	1850s
B. commutatus	Hairy Brome	Poaceae	annual	Eurasia	unknown
B. inermis	Smooth Brome	Poaceae	annual	Europe	1800s
B. japonicus	Japanese Brome	Poaceae	annual	Eurasia	unknown
B. rubens	Red Brome	Poaceae	annual	Mediterranean	1848
B. secalinus	Rye Brome	Poaceae	annual	Eurasia	unknown
B. tectorum	Cheatgrass	Poaceae	annual	Eurasia	1861
Broussonetia papyrifera	Paper Mulberry	Moraceae	tree	East Asia	1750
Buddleja davidii	Butterfly Bush	Loganiaceae	shrub	East Asia	＜1900s
B. lindleyana	Lindley's Butterfly-bush	Loganiaceae	shrub	East Asia	1840
B. madagascariensis	Smokebush	Loganiaceae	shrub vine	Africa	unknown
Butomus umbellatus	Flowering-rush	Butomaceae	perennial aquatic	Eurasia	1897
Cabomba caroliniana	Fanwort	Cabombaceae	perennial aquatic	New World	not apply
Caesalpinia decapetala	Cat's Claw	Fabaceae	tree，shrub	Tropical Asia	＜1910
Callisia fragrans	Basket-plant	Commelinaceae	perennial	Mexico	＜1940
Calystegia sepium	Hedge Bindweed	Convolvulaceae	perennial vine	North Temperate	not apply
Campanula rapunculoides	Creeping Bellflower	Campanulaceae	perennial	Europe	unknown
Cannabis sativa	Marijuana	Cannabaceae	annual	Central Asia	colonial time
Caragana arborescens	Siberian Peashrub	Fabaceae	shrub	Eurasia	1752
Cardamine impatiens	Narrowleaf Bittercress	Brassicaceae	annual，biennial	Eurasia	1950
Cardaria chalepensis	Lens-podded Hoary Cress	Brassicaceae	perennial	Eurasia	1898
C. draba	Heart-podded Hoary Cress	Brassicaceae	perennial	Eurasia	1875
Cardiospermum halicacabum	Balloonvine Heartseed	Sapindaceae	annual，biennial，perennial vine	Tropics & Subtropics	not apply
Carduus acanthoides	Plumeless Thistle	Asteraceae	annual，biennial	Eurasia	1879
C. nutans	Musk Thistle	Asteraceae	biennial	Eurasia	late 1800s
C. tenuiflorus	Slender Flower Thistle	Asteraceae	annual	Europe	＜1956
C. pycnocephalus	Italian Thistle	Asteraceae	annual	Eurasia	1912
Carpobrotus edulis	Highway Iceplant	Aizoaceae	perennial	South Africa	1900s
Carex kobomugi	Asiatic Sand Sedge	Cyperaceae	perennial	East Asia	1929
Casuarina cunninghamiana	Cunningham's Casuarina	Casuarinaceae	tree	Australia	unknown
C. equisetifolia	Australian Pine	Casuarinaceae	tree	Australia	late 1800s
C. glauca	Waxy Casuarina	Casuarinaceae	tree	Australia	＜1924
Celastrus orbiculatus	Oriental Bitter Sweet	Celastraceae	woody vine	East Asia	1836
Centaurea benedicta	Blessed Thistle	Asteraceae	annual	Mediterranean	colonial time
C. stoebe ssp. *micranthos*	Spotted Knapweed	Asteraceae	biennial	Europe，Western Asia	1883
C. calcitrapa	Purple Start Thistle	Asteraceae	annual，biennial，perennial	Mediterranean	＜1886
C. cyanus	Corn-flower	Asteraceae	annual	Europe	unknown
C. x-moncktonii	Meadow Knapweed	Asteraceae	perennial	Europe	1910s
C. diffusa	Diffuse Knapweed	Asteraceae	biennial	Europe	1800s

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
horticulture	5	horticulture，wetland，urban	FL，HI，PR，VI.
forage	5	urban，wild，desert	AZ，CA，HI，NM，NV，TX，UT.
w/people? w/seeds?	2	agriculture，urban，wild	AK,AL,AZ,CA,CO,CT,DE,FL,HI,IA,ID,IL,IN,KS,KY,LA，MA,MD,ME,MI,
w/people? w/seeds?	5	agriculture，urban，wild	CA，NJ，OR，PA；ON，QC.
w/seed? w/peoples?	3	urban，horticulture，wild	AL,AR,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,MA,MD,ME,MI,
w/seed	3	urban，wild，shoreline	AZ，CA，CO，HI，IA，ID，KY，MA，ME，MT，NJ，NM，NV，NY，OR，SD，
horticulture	5	horticulture，urban，wild	CA，FL，LA，PR，TX.
horticulture	5	forest，urban，wetland	FL，GA，HI，PR.
horticulture	3	horticulture，urban，forest	CT，DC，DE，GA，IA，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，NC，
horticulture	3	forest，urban，horticulture	CO，CT，DE，IA，ID，IL，IN，KS，MA，MD，ME，MI，MN，MO，MT，NC，
w/seed? w/peoples?	3	horticulture，urban，wild	AK，AR，CO，CT，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，
horticulture	5	forest，wetland，urban	CO，CT，IA，IL，IN，KY，MA，ME，MI，NH，NJ，NY，OH，OR，PA，VA，
horticulture	5	urban，horticulture，forest	FL，HI.
vegetable，oil	3	agriculture，urban，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/seed	4	desert，agriculture，urban	AZ，CA，NM，NV，TX.
forage	3	agriculture，urban，wild	AL，AR，AZ，CA，CO，DC，FL，GA，HI，IA，IL，KS，KY，LA，MD，MO，
forage	3	agriculture，urban，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,
forage	3	agriculture，urban，wild	AK,AR,AZ,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,MN,MO,
forage	3	agriculture，urban，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
forage	3	agriculture，pasture，urban	AZ，CA，HI，ID，MA，MD，MT，NM，NV，NY，OR，SC，TX，UT，VA，WA.
forage	3	agriculture，pasture，urban	AK,AL,AR,AZ,CA,CO,CT,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,
forage	3	agriculture，pasture，urban	AK,AL,AR,AZ,CA,CO,CT,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
horticulture，fiber industry	3	horticulture，urban，forest	AL，AR，CT，DC，DE，FL，GA，HI，IL，IN，KS，KY，LA，MA，MD，MO，
horticulture	3	urban，horticulture，wetland	CA，CT，GA，HI，IL，KY，MA，MD，MI，NC，NJ，NY，OH，OR，PA，PR，
horticulture	5	urban，horticulture，wetland	AL，AR，FL，GA，LA，MS，NC，SC，TX.
horticulture	5	urban，horticulture，wetland	FL，HI，PR.
horticulture	3	aquatic，wetland，urban	CT，ID，IL，IN，ME，MI，MN，MT，ND，NE，NY，OH，PA，SD，VT，WI；
not apply	3	aquatic，wetland，urban	AL，AR，CA，CT，DC，DE，FL，GA，IL，IN，KS，KY，LA，MA，MI，MO，
rance fence	5	forest，urban，wild	HI，PR.
Medicine，Food	5	horticulture，urban，wetland	FL，HI，LA，PR，VI.
not apply	3	urban，horticulture，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
horticulture	3	urban，horticulture，wild	AK，CO，CT，DC，DE，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，
medicine，food，fiber industry	6		AL,AR,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,
horticulture	5	horticulture，urban，forest	AK，CA，CO，IA，ID，IL，MA，MD，ME，MI，MN，MT，ND，NE，NM，
medicne? Food?	3	urban，horticulture，wetland	CT，DE，KY，MA，ME，MI，NC，NH，NJ，NY，OH，PA，VA，VT，WV；
w/boat	3	wild，forest，pastures	CA，CO，IA，ID，IN，KS，MO，MT，ND，NE，NM，NV，OR，SD，UT，
w/boat	3	wild，forest，pastures	AZ，CA，CO，CT，DC，DE，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，
not apply	5	urban，landscape，wild	AL，AR，CT，DC，DE，FL，GA，HI，IL，IN，KS，KY，LA，MA，MI，MO，
horticulture	3	pastures，agriculture，urban	CA，CO，CT，DE，IA，ID，IL，KS，KY，MA，MD，ME，MI，MN，MT，NC，
w/boat	2	pastures，agriculture，urban	AL,AR,AZ,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,MI,MN,
w/seeds? w/peoples?	5	pastures，agriculture，urban	CA，NJ，OR，PA，TX，WA.
w/seeds? w/peoples?	4	pastures，agriculture，urban	AL，AR，CA，HI，ID，NY，OR，SC，TX，WA.
environmental industry	4	horticulture，urban，shoreland	CA，FL.
w/goods	4	shoreland，urban，wetland	DE，MA，MD，NC，NJ，OR，RI，VA.
forest	4	urban，forest，shoreland	FL，PR.
forest	4	urban，forest，shoreland	FL，HI，PR，VI.
forest	4	urban，forest，shoreland	FL，HI.
horticulture	2	urban，forest，horticulture	AR，CT，DC，DE，GA，IA，IL，IN，KY，MA，MD，ME，MI，NC，NH，NJ，
medicine	3	horticulture，pastures，urban	AL，AR，AZ，CA，CT，FL，GA，ID，IL，MA，MD，MS，NC，NY，OR，SC，
w/seeds	1	pastures，forest，urban	AL,AR,AZ,CA,CO,CT,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,
w/seeds?	3	pastures，urban，wild	AL，AZ，CA，DC，IA，IL,IN，MD，NJ，NM，NY，OR，PA，UT，VA，WA；ON.
horticulture	6	horticulture，urban，wetland	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture	3	pastures，urban，wild	CA，CT，ID，IL，MA，ME，MI，MN，MO，MT，NH，NJ，NY，OH，OR，
w/seeds	2	pastures，agriculture，urban	AZ，CA，CO，CT，IA，ID，IL，IN，KY，MA，MI，MO，MT，NE，NJ，NM，

MN,MO,MS,MT,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK.

MN,MO,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SC,SD,TN,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
TX，UT，WA，WY；AB，BC.

ND，NE，NH，NJ，NY，OH，PA，RI，SC，SD，TN，VA，VT，WI，WV，WY；NB，NS，ON，PE，QC.
ND，NE，NH，NJ，NM，NY，OH，PA，RI，SD，VA，VT，WA，WI，WV；BC，MB，NB，NF，NS，ON，PE，QC，SK.
MT，ND，NE，NH，NJ，NM，NV，NY，OH，OK，OR，PA，RI，SD，TN，UT，VA，VT，WA，WI，WV，WY；AB，BC，MB，NB，NS，ON，QC，SK.
VT，WA，WI；BC，MB，NB，NS，ON，PE.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,ON,QC,PE,SK,YT.

MS，NC，ND，NE，NJ，NM，NV，NY，OH，OK，OR，PA，SC，SD，TN，TX，UT，VA；AB，ON.
ME,MI,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,NB,NF,NS,NT,ON,PE,QC,SK.
MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,NU,ON,PE,QC,SK,YT.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH ,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,ON,QC,SK.

ME,MI,MN,MO,MS,MT,NC,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,NB,NS,ON,QC,YT.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NS,ON,QC,SK,YT.
MS，NC，NJ，NY，OH，OK，PA，RI，SC，TN，TX，VA，WV.
SC，TN，VA，WA，WV；BC.

AB，BC，MB，NB，NS，ON，PE，QC.
MS，NC，NH，NJ，NY，OH，OK，OR，PA，RI，SC，TN，TX，VA，WA. ON.

MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
MT,NC，ND，NE，NH，NJ，NM，NV，NY，OH，OR，PA，RI，SD，TX，UT，VA，VT，WA，WI，WV，WY；AB，BC，MB，NB，NF，NS，ON，PE，QC，SK.
ME,MI,MN,MO,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；MB,NB,NS,ON,QC,SK.
OR，SD，UT，WA，WI，WY；AB，BC，MB，NB，ON，QC，SK，YT.
NB，ON.
WA，WY；AB，BC，MB，ON，SK.
MN，MO，MT，ND，NE，NJ，NM，NV，NY，OH，OK，OR，PA，RI，SD，TX，UT，VA，VT，WA，WI，WV，WY；AB，BC，MB，NB，NS，ON，QC，SK.
MS，NJ，NY，OH，OK，PA，SC，TN，TX，VA，PR.
ND，NE，NJ，NY，OH，OK，PA，RI，SD，VA，VT，WA，WI，WV，WY；BC，NB，NS，ON，QC.
MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,ON,QC,SK.

NY，OH，PA，RI，SC，TN，VA，VT，WI，WV；NB，ON，QC.
TN，UT，VA，WA，WI；NB，NS，ON.
ME,MI,MN,MO,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OR,PA,RI,SC,SD,TN,UT,VA,VT,WA,WI,WV,WY；AB,BC,NB,NS,ON,QC,YT.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,ON,PE,QC,YT.
PA，RI，VA，VT，WA，WI；BC，NS，ON，QC.
NV，OH，OR，TN，UT，WA，WI，WY；AB，BC，ON，QC，SK，YT.

Continuous table 3

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
C. jacea	Brown Starthistle	Asteraceae	perennial	Europe	1906
C. melitensis	Tocolote	Asteraceae	annual	Mediterranean	colonial time
C. solstitialis	Yellow Starthistle	Asteraceae	annual	Mediterranean	1849
C. nigrescens	Tyrol Knapweed	Asteraceae	perennial	Europe	1800s
C. triumfettii	Squarrose Knapweed	Asteraceae	perennial	Mediterranean	unknown
Cestrum diurnum	Day Jassamine	Solanaceae	aquatic shrub	Tropical America	<1930s
Chelidonium majus	Celandine	Papaveraceae	perennial	Eurasia and Africa	1672
Chenopodium album	White Goosefoot	Chenopodiaceae	annual	North Temperate	not apply
C. ambrosioides	Wormseed Goosefoot	Chenopodiaceae	annual，biennial，perennial	Central & South America	<1900s
C. murale	Netterleaf Goosefeet	Chenopodiaceae	annual	Eurasia	unknown
Chondrilla juncea	Rush Skeletonweed	Asteraceae	perennial	Mediterranean	1872
Chrysopogon aciculatus	Golden Beardgrass	Poaceae	perennial	Tropical Asia	unknown
Cichorium intybus	Chicory	Asteraceae	perennial	Eurasia and Africa	colonial time?
Cinchona pubescens	Red Cinchona	Rubiaceae	tree	South and Central America	1868
Cinnamomum camphora	Camphor Tree	Lauraceae	tree	East Asia	1875
Cirsium arvense	Canadian Thistle	Asteraceae	perennial	Eurasia	1600s
C. vulgare	Bull Thistle	Asteraceae	biennial	Eurasia	colonial time
Citrus reticulata	Tangerine	Rutaceae	tree	Tropical Asia	1800s
Clematis terniflora	Japanese Virgin's-bower	Ranunculaceae	perennial vine	East Asia	unknown
Coccinia grandis	Ivy Gourd	Cucurbitaceae	perennial vine	Old Tropics	unknown
Colocasia esculenta	Wild Taro	Araceae	perennial	South & Southeast Asia	<1910
Colubrina asiatica	Asiatic Colubrina	Rhamnaceae	shrub	Old Tropics	1937
Commelina benghalensis	Tropical spiderwort	Commelinaceae	annual，perennial	Old Tropics	1909
C. communis	Asiatic Dayflower	Commelinaceae	annual	Asia	<1873
Conicosia pugioniformis	Narrow-leafed iceplant	Aizoaceae	perennial	South Africa	early 1900s
Convallaria majalis	Lily-of-the-valley	Liliaceae	perennial	Eurasia	unknown
Coronilla varia	Crown Vetch	Fabaceae	perennial vine	Old World	1950s
Conium maculatum	Poison Hemlock	Apiaceae	biennial	Mediterranean	<1800s
Convolvulus arvensis	Field Bindweed	Convolvulaceae	perennial vine	Eurasia	1730s
Conyza canadensis	Butter Weed	Asteraceae	annual，biennial	North Temperate	not apply
Cordia dichotoma	Fragrant Manjack	Boraginaceae	tree	Tropical Asia & Australia	unknown
Coronopus didymus	Swinecress	Brassicaceae	annual，biennial	N Temperate? S America?	unknown
Cortaderia jubata	Jubata Grass	Poaceae	perennial	South America	1800s
C. selloana	Pampas Grass	Poaceae	perennial	South America	1775
Crataegus monogyna	Single-seed hawthorn	Rosaceae	shrub	Europe，North Africa，Himalayas	early 1900s
Cruciata pedemontana	Piedmont Bedstraw	Rubiaceae	annual	Europe	unknown
Crupina vulgaris	Common Crupina	Asteraceae	annual	Mediterranean	unknown
Cryptostegia madagascariensis	Madagascar Rubber-vine	Asclepiadaceae	woody vine	Madagascar	unknown
Cupaniopsis anacardioides	Carrotwood	Sapinadaceae	tree	Australia	1955
Cuscuta approximata	Alfalfa Dodder	Cuscutaceae	annual or pereenial parasite	Mediterranean	unknown
C. epilinum	Flax Dodder	Cuscutaceae	perennial parasite	Southwest Asia	unknown
C. epithymum	Clover Dodder	Cuscutaceae	perennial parasite	Europe & West Asia	unknown
C. japonica	Japanese Dodder	Cuscutaceae	annual parasite	East Asia	<1965
C. pentagona	Field Dodder	Cuscutaceae	annual parasite	North America	not apply
C. suaveolens	Fringed Dodder	Cuscutaceae	perennial parasite	South America	unknown
Cyathea cooperi	Australian Tree Fern	Cyatheaceae	tree	Australia	<1950s
Cynanchum louiseae	Black Swallow-wort	Asclepiadaceae	perennial	Europe	1854
C. rossicum	European Swallow-wort	Asclepiadaceae	perennial	Europe	late 1800s
C. vincetoxicum	White swallow-wort	Asclepiadaceae	perennial	Europe	late 1800s
Cynara cardunculus	Artichoke Thistle	Asteraceae	perennial	Mediterranean	<1860s
Cynodon dactylon	Bermuda Grass	Poaceae	perennial	Old World	middle 1800s
Cynoglossum officinale	Common Hound's-tongue	Boraginaceae	biennial	Eurasia	middle 1800s
Cyperus entrerianus	Deeprooted Sedge	Cyperaceae	perennial	South America	1990
C. involucratus	Umbrella Sedge	Cyperaceae	perennial	Africa	unknown

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
horticulture	2	pastures，agriculture，urban	CA，CT，DC，DE，IA，ID，IL，IN，KY，MA，MD，ME，MI，MT，NH，NJ，
w/seeds?，w/peoples?	3	agriculture，pastures，urban	AL，AZ，CA，GA，HI，IN，MA，MO，NJ，NM，NV，OR，PA，SC，TX，
w/seeds	1	pastures，agriculture，urban	AZ，CA，CO，CT，FL，IA，ID，IL，IN，KS，KY，MA，MD，MI，MN，MO，
w/seeds，w/boat	3	agriculture，pastures，urban	CA，CT，DC，ID，IL，IN，MA，MD，ME，MI，MO，MT，NE，NH，NJ，NY，
w/seeds?，w/peoples?	4	agriculture，pastures，urban	CA，MI，NV，OR，UT.
horticulture	5	horticulture，urban，pastrues	FL，HI，PR，TX，VI.
medicine，horticulture	3	urban，horticulture，wild	CT，DC，DE，GA，IA，IL，IN，KY，MA，MD，ME，MI，MN，MO，MT，
not apply	3	urban，agriculture，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
food，medicine	3	urban，horticulture，agriculture	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，LA，
w/seeds?，w/peoples?	3	urban，horticulture，wild	AL，AR，AZ，CA，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，LA，MA，
w/food	3	pastures，agriculture，urban	CA，DC，DE，GA，ID，IN，MD，MI，MT，NJ，NY,OR，PA，VA，WA，WV；
unknown	5	wild	HI.
food，medicine	3	urban，agriculture，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
medicine	5	forest，urban，wild	HI.
forest，industry	5	forest，urban，wetland	AL，CA，FL，GA，HI，LA，MS，NC，PR，SC，TX，PR，VI.
w/seeds	1	agriculture，urban，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,IA,ID,IL,IN,KS,KY,MA,MD,ME,MI,
w/seeds	2	pastrues，forest，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
fruit	6	horticulture，forest，urban	FL，PR.
horticulture	4	landscape，urban，forest	AL，AR，CA，CT，DC，DE，FL，GA，IL，IN，KS，KY，LA，MA，MD，MO，
food，medicine	5	agriculture，urban，forest	FL，HI，TX，VI.
food	5	aquatic，wetland，urban	AL，FL，GA，HI，LA，MS，NC，PA，PR，SC，TX.
food，medicine	4	forest，urban，wetland	FL，HI.
w/seeds? w/peoples?	4	agriculture，wetland，urban	CA，FL，GA，HI，LA，NC，PR.
w/seeds? w/peoples?	3	horticulture，urban，agriculture	AL，AR，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，ME，
horticulture?	5	urban，shoreland	CA.
horticulture	5	forest，urban	AL，AR，CT，DE，IA，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，MT，
environmental industry	3	urban，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,MA,MD，ME，
horticulture	2	wild，wetland	AL，AR，AZ，CA，CO，CT，DC，DE，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，ME，
w/seed	2	agriculture，horticulture，urban	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
not apply	3	urban，pastrues，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
fruit	6	horticulture，urban	FL，HI.
w/seeds? w/peoples?	3	urban，shoreland，wild	AL，AR，AZ，CA，CT，DC，DE，FL，GA，HI，IL，IN，LA，MA，MD，ME，
horticulture	4	shoreline，wetland，urban	CA，HI，OR.
horticulture	4	shoreline，wetland，aquatic	AL，CA，GA，LA，NJ，OR，SC，TN，TX，UT，VA.
horticulture	3	urban，forest，wild	AR，AR，CA，CT，DC，DE，IL，KY，MA，ME，MI，MT，NH，NJ，NY，OH，
unknown	5	urban，wild	AL，AR，GA，ID，IL，IN，KS，KY，LA，MD，MO，MS，MT，NC，OH，OK，
unknown	4	agriculture，pastures，urban	CA，ID，MA，OR，WA.
horticulture	5	forest，urban，wetland	FL，PR.
horticulture	5	shoreline，wetland，forest	FL.
w/ssed	3	agriculture，urban，wild	CA，CO，ID，MT，ND，NE，NM，NV，OR，UT，WA，WY；BC.
w/seed	3	agriculture，urban，wild	DE，MA，MD，MI，NJ，NY，OH，PA，VT，WA；MB，ON，QC.
w/seed	3	agiiculture，horticulture，urban	CA，CT，IA，KY，MA，MD，ME，MI，MO，MT，ND，NE，NJ，NM，NV，
w/seed	5	agriculture，horticulture，urban	FL，SC，TX.
not apply	3	agriculture，horticulture，forest	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，LA，MA，
unknown	5	agriculture，horticulture，forest	AL，CA，MD，NM，OH，SD，TX.
horticulture	5	horticulture，urban，forest	HI.
horticulture	3	horticulture，forest，urban	CA，CT，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，NE，NH，NJ，NY，
horticulture	3	horticulture，forest，urban	CT，IN，MA，MI，MO，NH，NJ，NY，PA；BC，ON，QC.
horticulture	5	horticulture，forest，urban	MI，NY；ON.
vegetable，w/people	4	pastures，urban，wild	CA，OR，WA.
horticulture	3	pastures，wetland，urban	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，
w/seed	3	agriculture，pastures，urban	AL，AR，AZ，CA，CO，CT，DC，DE，GA，IA，ID，IL，IN，KS，KY，MA，MD，ME，
w/seeds? w/peoples?	5	wetland，urban，wiild	AL，FL，GA，LA，MO，MS，OK，PR，TX.
horticulture	5	aquatic，wetland，urban	AZ，CA，FL，HI，LA，MS，NY，TX，PR.

NY, OH, OR, PA, RI, UT, VA, VT, WA, WI, WV; BC, NB, ON, QC.
UT, WA, WI; BC.
MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WI, WV, WY; AB, MB, ON, SK.
OH, OR, PA, VA, VT, WA, WI, WV, WY; BC, NS, ON, QC.

NC, NE, NH, NJ, NY, OH, PA, RI, TN, UT, VA, VT, WA, WI, WV; BC, MB, NB, NS, ON, PE, QC.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MA, MD, ME, MI, MO, MS, NC, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, PR, VI; NS, ON, QC.
MD, ME, MI, MO, MT, NC, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, TN, TX, UT, VA, VT, WA, WI, WV, WY, PR, VI; NB, ON, QC, SK.
BC, ON.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.

MN,MO,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OR,PA,RI,SD,TN,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK.

MS, NC, NE, NH, NJ, NY, OK, PA, RI, SC, TN, TX, VA, VT, WV; ON.

MI, MN, MO, MS, NC, ND, NE, NH, NJ, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, VA, VT, WI, WV; ON, QC.

NC, NH, NJ, NY, OH, OR, PA, RI, TN, UT, VA, VT, WA, WI, WV; NB, NF, NS, ON, PE, QC, SK.
MI,MN,MO,MS,MT,NC,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
MI, MN, MO, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; AB, BC, NB, NS, ON, QC, SK.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NS,ON,PE,QC,SK.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK.

MO, MS, NC, NH, NJ, NM, NY, OH, OR, PA, RI, SC, TN, TX, VA, WA, WI, WV; BC, NB, NF, NS, ON, QC.

OR, PA, RI, TN, UT, VA, VT, WA, WI, WV; BC, NB, NS, ON, PE, QC.
PA, SC, TN, TX, VA, WA, WV.

NY, OH, OR, PA, RI, SD, VA, VT, WA, WV, WY; BC, NB, ON.

MD,MI, MN, MO, MS, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, WA, WI, WV; BC, MB, NB, NF, NS, ON, QC, SK.

OH, PA, RI, VT, WI; ON, QC.

LA, MA, MD, MI, MO, MS, NC, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, SC, TN, TX, UT, VA, WA, WV; BC.
MI, MN, MO, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OR, PA, RI, SC, SD, TN, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NS, ON, QC, SK.

Continuous table 4

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
C. prolifer	Miniature Flat Sedge	Cyperaceae	perennial	Africa	unknown
C. rotundus	Purple Flatsedge	Cyperaceae	perennial	Tropical Asia	unknown
Cytisus scoparius	Scotch Broom	Fabaceae	shrub	Europe	1850
Dactylis glomerata	Orchard Grass	Poaceae	perennial	Eurasia	1760
Dalbergia sissoo	Indian Rosewood	Fabaceae	tree	South Asia	unknown
Datura stramonium	Jimsonweed	Solanaceae	annual	South America	colonial time
Daucus carota	Wild Carrot	Apiaceae	biennial	Mediterranean	colonial time
Delairea odorata	Cape Ivy	Asteraceae	perennial vine	South Africa	1850
Dianthus armeria	Deptford Pink	Caryophyllaceae	annual，biennial	Europe	unknown
Digitalis purpurea	Foxglove	Scrophulariaceae	biennial，perennial	Mediterranean	1940s
Dioscorea alata	Water Yam	Dioscoreaceae	perennial vine	Tropical Asia	＜1930s
D. bulbifera	Climbing Yams	Dioscoreaceae	perennial vine	Tropical Asia	1800s
D. polystachya	Chinese Yam	Dioscoreaceae	perennial vine	East Asia	＜1970
Dipsacus fullonum	Fuller′s Teasel	Dipsacaceae	biennial	Europe	1700s
D. laciniatus	Cut-leaf Teasel	Dipsacaceae	biennial	Europe	1700s
Duchesnea indica	Indian Mock-strawberry	Rosaceae	perennial	East and South Asia	unknown
Echinochloa crus-galli	Barnyard Grass	Poaceae	annual	Tropical Asia	1843
Echium vulgare	Common Viper′s-bugloss	Boraginaceae	biennial	Europe，West Asia	unknown
Emex australis	Three-corner Jack	Polygonaceae	annual	South Africa	unknown
E. spinosa	Devil′s Thorn	Polygonaceae	annual	Mediterranean	＜1901
Egeria densa	Egeria	Hydrocharitaceae	perennial aquatic	South America	1893
Eichhornia crassipes	Water Hyacinth	Pontederiaceae	perennial aquatic	South America	1884
Ehrharta calycina	Perennial Veldtgrass	Poaceae	perennial	South Africa	1929
E. erecta	Panic Veldtgrass	Poaceae	perennial	South Africa	1930
E. longiflora	Longflowered Veldtgrass	Poaceae	perennial	South Africa	1996
Elaeagnus angustifolia	Russian Olive	Elaeagnaceae	shrub，tree	Europe，West Asia	late 1800s
E. pungens	Silverthorn	Elaeagnaceae	shrub	East Asia	1830
E. umbellata	Autumn Olive	Elaeagnaceae	shrub	East Asia	1830
Eleusine indica	India Goosegrass	Poaceae	annual	Africa	unknown
Elymus repens	Quackgrass	Poaceae	perennial	Eurasia	1672
Epipremnum pinnatum	Centipede Tongavine	Araceae	Herb Vine	Tropical Asia	unknown
Eragrostis cilianensis	Stinkgrass	Poaceae	annual	Eurasia	unknown
E. curvula	Weeping Lovegrass	Poaceae	perennial	South Africa	1927
E. lehmanniana	Lehmann′s Lovegrass	Poaceae	perennial	South Africa	1932
E. pilosa	Indian Lovegrass	Poaceae	annual	Eurasia	unknown
Eremochloa ophiuroides	Centipede Grass	Poaceae	perennial	Tropical Asia	1916
Eucalyptus globulus	Blue Gum	Myrtaceae	tree	Australia	1853
Eugenia uniflora	Surinam Cherry	Myrtaceae	shrub	Brasil	1931
Euonymus alata	Winged Burning Bush	Celastraceae	shrub	East Asia	1860
E. fortunei	Climbing Euonymus	Celastraceae	shrub vine	East Asia	1907
Euphorbia dentata	Toothed Spurge	Euphorbiaceae	annual	North America	not apply
E. esula	Leafy Spurge	Euphorbiaceae	annual	Eurasia	1827
E. heterophylla	Mexican Fireplant	Euphorbiaceae	annual，perennial	South USA to Tropical Am	not apply
Fallopia aubertii	China Fleece Vine	Polygonaceae	perennial	China	1899
Fatoua villosa	Mulberry Weed	Moraceae	annual	Tropical Asia	1964
Ficus altissima	Counciltree	Moraceae	tree	Tropical Asia	unknown
F. carica	Edible Fig	Moraceae	tree	Mediterranean	1575
Firmiana simplex	Chinese Parasol Tree	Sterculiaceae	tree	East Asia	1757
Flacourtia indica	Governor′s-plum	Flacourtiaceae	tree	Old Tropics	unknown
Flueggea virosa	Simpleleaf Bushweed	Euphorbiaceae	shrub	Old Tropics	unknown
Foeniculum vulgare	Fennel	Apiaceae	perennial	Mediterranean	colonial time
Frangula alnus	Glossy Buckthorn	Rhamnaceae	shrub	Old World	＜1800s
Fumaria officinalis	Drug Fumitory	Fumariaceae	annual	Eurasia	unknown
Galega officinalis	Goatsrue	Fabaceae	perennial	Mediterranean	1891

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
horticulture	5	aquatic，wetland，urban	FL，HI.
unknown	3	agriculture，wetland，urban	AL，AR，AZ，CA，DC ，DE ，FL，GA ，HI，KY，LA，MD，MN，MO，MS，
horticulture	3	urban，agriculture，pastures	AL，CA，CT，DC，DE，GA，HI，ID，KY，MA，MD，ME，MI，MT，NC，NH，
forage	3	horticulture，urban，wetland	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
forest	5	agriculture，forest，urban	FL，PR.
medicine	3	urban，agriculture，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
vegetable	3	urban，agriculture，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture	4	wetland，urban，wild	CA，HI，MT，OR.
horticulture	3	wetland，urban，wild	AL,AR,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA，MD,
horticulture，medicine	5	horticulture，urban，wetland	AK，CA，CO，CT，ID，MA，MD，ME，MI，MT，NH，NJ，NY，OH，OR，
food，horticulture	5	urban，wetland，forest	FL，GA，LA，PR，VI.
food	5	forest，landscape，urban	FL，HI，LA，MS，PR，TX.
horticulture	4	urban，wetland，forest	AL，AR，CT，DC，FL，GA，KY，MA，MD，MO，MS，NC，NJ，OH，PA，
fiber industry? w/seed?	3	urban，horticultue，forest	AL，AR，AZ，CA，CO，CT，DC，DE，IA，ID，IL，IN，KS，KY，MA，MD，
horticulture	4	urban，horticultue，forest	CO，IA，IL，IN，KS，KY，MA，MD，MI，MN，MO，NE，NJ，NY，OH，OR，
horticulture	3	horticulture，urban，wetland	AL，AR，CA，CT，DC，DE，FL，GA，IA，IL，IN，KY，LA，MD，MI，MO，
w/seed? w/people?	2	agriculture，wetland，urban	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
medicine? Horticulture?	3	urban，horticulture，wild	AL,AR,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,MN,
unknown	5	urban，wild	CA.
w/seed? w/people?	5	agriculture，horticulture，pastures	CA，FL，HI，MA，NJ，TX.
aquarium trade	2	aquatic	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IL，IN，KS，KY，LA，
horticulture	1	aquatic	AL，AR，AZ，CA，CO，CT，DE，FL，GA，HI，KY，LA，MO，MS，NC，NJ，
pastures	5	forest，pastures，shoreland	CA，HI，TX.
pastures	5	forest，pastures，shoreland	CA，HI.
pastures	5	forest，pastures，shoreland	CA.
horticulture	2	agriculture，wetland，urban	AZ，CA，CO，CT，IA，ID，IL，KS，KY，MA，MD，ME，MI，MN，MO，MT，
horticulture	5	forest，urban，wild	AL，DC，FL，GA，KY，LA，MA，MS，NC，SC，TN，VA.
horticulture	3	forest，pastures，urban	AL，AR，CT，DC，DE，FL，GA，HI，IA，IL，IN，KS，KY，LA，MA，MD，
w/seed? w/people?	3	horticulture，urban，wild	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，IL，IN，KS，KY，LA，
w/seed?	3	horticulture，urban，pastures	AK,AR,AZ,CA,CO,CT,DC,DE,IA,ID,IL,IN,KS,MA,MD,ME,MI,MN,MO,MS,
horticulture	5	horticulture，urban，wild	FL，HI，PR.
w/seed? w/people?	3	horticulture，urban，pastures	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,
horticulture	3	horticulture，urban，pastures	AL，AR，AZ，CA，CO，DE ，FL，GA，HI，IL，KS，KY，LA，MA，MD，MO，
environment	5	urban，horticulture，wild	AZ，CA，NM，OK，TX，UT.
w/seed? w/people?	3	urban，horticulture，agriculture	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，LA，
horticulture	5	horticulture，urban，wild	AL，AR，FL，GA，LA，MA，MS，NC，SC，TN，TX，VA. PR.
horticulture	5	urban，horticulture，forest	CA，HI.
horticulture，fruit	5	forest，pastures，horticulture	FL，HI，PR.
horticulture	4	forest，agriculture，urban	CT，DC，DE，GA，IA，IL，IN，KY，MA，MD，MI，MO，MT，NC，NH，NJ，
horticulture	4	forest，agriculture，urban	AL，CT，DC，DE，GA，IL，IN，KS，KY，MA，MD，MI，MO，MS，NC，NJ，
not apply	4	urban，agriculture，forest	AL，AR，AZ，CA，CO，GA，IA，IL，IN，KS，KY，LA，MD，MI，MO，MS，
w/seed? w/people?	1	pastures，forest，agriculture	AZ，CA，CO，CT，DE，IA，ID，IL，IN，KS，MA，MD，ME，MI，MN，MO，
not apply	4	horticulture，urban，wild	AL，AZ，CA，FL，GA，HI，LA，MS，NM，PR，TX，VI.
horticulture	2	horticulture，urban，forest	CA，CO，MA，MD，MI，NM，NY，PA，UT，VA，WA.
horticulture	3	horticulture，urban，forest	AL，AR，CA，FL，GA，HI，IN，KY，LA，MO，MS，NC，OH，OK，PR，SC，
environmental industry	5	horticulture，urban，forest	FL.
fruit	4	urban，horticulture，wild	AL，CA，DC，FL，GA，KY，LA，MA,MD，MI，MS，NC，NY，PA，PR，
horticulture	5	horticulture，urban，wild	AL，AR，CA，FL，GA，LA，MD，MS，NC，SC，TN，TX，VA.
horticulture	5	horticulture，urban，wild	FL，PR.
not known	5	urban	PR.
food，medicine	3	urban，wild，pastures	AZ，CA，CT，DC，DE，FL，GA，HI，IA，IL，KS，KY，LA，MA，MD，ME，
horticulture	3	forest，wetland，urban	CO，CT，IA，ID，IL，IN，KY，MA，MD，ME，MI，MN，NE，NH，NJ，NY，
horticulture	5	horticulture，urban，forest	AL，AR，CA，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，LA，MA，MD，ME，
forage	4	pastrures，urban，horticulture	CO，CT，MA，MD，ME，NE，NY，PA，UT，WA；ON.

NC, NJ , NY, OK, OR, PA, SC, TN, TX, VA, PR, VI.
NJ, NY, OH, OR, PA, SC, TN, UT, VA, WA, WV; BC, NS, PE.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,YT.

MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV; AB,BC,MB,NB,NS,ON,PE,QC,SK.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; BC,MB,NB,NF,NS,ON,PE,QC,SK.

ME,MI,MN,MO,MS,MT,NC,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,NB,NF,NS,ON,PE,QC.
PA, UT, VT, WA, WI, WV, WY; BC, NB, NF, NS, ON, QC.

SC, TN, VA, WV.
MI, MO, MS, MT, NC, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, UT, VA, VT, WA, WI, WV, WY; BC, ON, QC.
PA, VA, WI, WV; ON.
MS, NC, NE, NJ, NY, OH, OK, OR, PA, SC, TN, TX, VA, WA, WI, WV; BC, ON.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
MO,MT,NC,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.

MA, MD, MO, MS, NC, NE, NH, NJ, NM, NY, OH, OK, OR, PA, PR, SC, TN, TX, UT, VA, VT, WA; BC.
NY, OR, SC, TN, TX, VA, WA; ON. PR VI.

NC, ND, NE, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WY; AB, BC, MB, NB, NS, ON, QC, SK.

ME, MI, MO, MS, MT, NC, NE, NH, NJ, NY, OH, OR, PA, RI, SC, TN, VA, VT, WA, WI, WV; ON.
MA, MD, ME, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WI, WV; ON, QC.
MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,NU,ON,PE,QC,SK,YT.

ME,MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NS,ON,QC,SK.
MS, NC, NJ, NM, NY, OH, OK, OR, PA, SC, TN, TX, UT, VA, WA, WV. PR.

MA, MD, ME, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, VA, VT, WA, WI, WV, WY; BC, NS, ON, QC.

NY, OH, PA , RI, SC, VA, VT, WI, WV; ON.
NY, OH, PA, RI, SC, TN, VA, WI; ON.
NC, NJ, OH, OK, PA, SC, TN, TX, VA, WV.
MT, ND, NE, NH, NJ, NM, NV, NY, OH, OR, PA, SD, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NS, ON, PE, QC, SK, YT.

TN, TX, VA, WA.

SC, TN, TX, VA.

MI, MO, MS, NC, NE, NJ, NM, NV, NY, OH, OR, PA, RI, SC, TN, TX, UT, VA, WA, WI, WV; AB, BC, ON, QC.
OH, PA, RI, TN, VT, WI, WV, WY; MB, NB, NS, ON, PE, QC, SK.
MI, MN, MO, MS, MT, NC, NH, NJ, NY, OH, OR, PA, SC, TX, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NF, NS, ON, PE, QC, SK.

Continuous table 5

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Galium aparine	Catchweed Bedstraw	Rubiaceae	annual	North Temperate	not apply
G. mollugo	White Bedstraw	Rubiaceae	perennial	Eurasia	unknown
Genista monspessulana	French Broom	Fabaceae	shrub	Mediterranean	1850s
Glechoma hederacea	Ground Ivy	Lamiaceae	perennial	Eurasia	＜1800s
Halogeton glomeratus	Halogeton	Chenopodiaceae	annual	Eurasia	＜1930s
Hedera helix	English Ivy	Araliaceae	perennial vine	Eurasia	colonial time
Hedychium coronarium	White Ginger	Zingiberaceae	perennial	Tropical Asia	1900s
H. gardnerianum	Kahili Ginger	Zingiberaceae	perennial	Tropical Asia	＜1950s
Helianthus ciliaris	Blue-weed Sunflower	Asteraceae	perennial	sw USA	not apply
Hemerocallis fulva	Common Daylily	Liliaceae	perennial	East Asia	1800s
Heracleum mantegazzianum	Giant Hogweed	Apiaceae	perennial	Caucasus and C Asia	1917
Hesperis matronalis	Dame′s Rocket	Brassicaceae	biennial，perennial	Europe	1600s
Hibiscus tiliaceus	Sea Rosemallow	Malvaceae	shrub，tree	Tropical Asia	unknown
H. trionum	Flower of an hour	Malvaceae	annual	Old World	colonial time
Hieracium aurantiacum	Orange Hawkweed	Asteraceae	perennial	Europe	1875
Hieracium caespitosum	Meadow Hawkweed	Asteraceae	perennial	Europe	1828
Hiptage benghalensis	Hiptage	Malpighiaceae	shrub vine	Tropical Asia	unknown
Holcus lanatus	Common Velvet Grass	Poaceae	perennial	Europe	＜1900s
Humulus scandens	Japanese Hop	Cannabaceae	perennial vine	East Asia	＜1900s
Hydrilla verticillata	Hydrilla	Hydrocharitacae	perennial aquatic	Old World	1950s
Hydrocharis morsus-ranae	European Frog-bit	Hydrocharitacae	annual aquatic	Eurasia	1932
Hygrophila polysperma	East Indian Hygrophila	Acanthaceae	annual/perennial aquatic	Tropical Asia	1945
Hymenachne amplexicaulis	West Indian Marsh Grass	Poaceae	perennial	Both Hemsphere	1968
Hyoscyamus niger	Black Henbane	Solanaceae	annual/biennial	Eurasia	colonial time
Hypericum perforatum	St. Joh′s-wort	Clusiaceae	perennial	Old World	colonial time
Impatiens glandulifera	Himalayan balsam	Balsaminaceae	annual	Himalayas	1850s
Imperata brasiliensis	Brazilian Satin-tail	Poaceae	perennial	central & south America	1920s
I. cylindrica	Cogon Grass	Poaceae	perennial	east Asia	1912
Indigofera hirsuta	Hairy Indigo	Fabaceae	annual	Old Tropic	colonial time
Ipomoea aquatica	Water-Spinach	Convolvulaceae	aquatic perennial vine	China	1979
I. hederacea	Morning Glory	Convolvulaceae	annual vine	central & south America	unknown
I. purpurea	Common Morning Glory	Convolvulaceae	annual vine	central & south America	unknown
Iris pseudacorus	Yellow Iris	Iridaceae	perennial aquatic	Mediterranean & Europe	1911
Isatis tinctoria	Dryer′s Woad	Brassicaceae	perennial	Caucasus to Asia	colonial time
Jasminum dichotomum	Gold Coast Jasmine	Oleaceae	shrub vine	West Africa	1920s
J. fluminense	Brazilian Jasmine	Oleaceae	shrub vine	West Africa	1920s
J. sambac	Arabian Jasmine	Oleaceae	shrub vine	Tropical Asia	unknown
Koelreuteria elegans	Golden Rain Tree	Sapindaceae	tree	Tropical Asia	1915
Kochia scoparia	Mexican Summer Cypress	Chenopodiaceae	annual	Old World	unknown
Kummerowia stipulacea	Korean-clover	Fabaceae	annual	East Asia	1919
K. striata	Common Korea-clover	Fabaceae	annual	East Asia	1846
Lactuca saligna	Willow-leaf Lettuce	Asteraceae	annual/biennial	Mediterranean & Europe	unknown
Lamium amplexicaule	Common Deadnettle	Lamiaceae	annual/biennial	Eurasia	unknown
Landoltia punctata	Dotted Water-flaxseed	Lemnaceae	perennial aquatic	Australia and Asia	1930s
Lantana camara	Lantana	Verbenaceae	shrub	Central & South America	1800s
Lapsana communis	Common Nipplewort	Asteraceae	annual	Europe & West & North Asia	1800s
Lathyrus latifolius	Perennial Sweet Pea	Fabaceae	perennial vine	Europe	colonial time
Lemna minor	Common duckweed	Lemnaceae	annual aquatic	Worldwide Temperate	not apply
Leonurus cardiaca	Common Mother-wort	Lamiaceae	perennial	Europe	colonial time
Lepidium latifolium	Perennial Pepperweed	Brassicaceae	perennial	Eurasia	1900s
Lespedeza bicolor	Shrubby Lespedeza	Fabaceae	shrub	East Asia	1856
L. cuneata	Chinese Lespedeza	Fabaceae	shrub	East Asia	1896
L. thunbergii	Thunberg′s Bushclover	Fabaceae	shrub	East Asia	1837
Leucaena leucocephala	Lead Tree	Fabaceae	tree	Central America	1900s

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
not apply	3	urban，horticulture，agriculture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
w/seed? w/people?	4	urban，horticulture，agriculture	CA，CT，DC，DE，GA，IA，ID，IL，IN，KY，MA，MD，ME，MI，MN，MS，
horticulture	4	forest，pastures，wetland	CA，OR，WA.
medicine	3	horticulture，agriculture，urban	AK,AL,AR,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
forage?	4	pastures，urban，wild	AZ，CA，CO，ID，MT，NE，NM，NV，OR，SD，UT，WA，WY.
horticulture	3	horticulture，urban，forest	AL，AR，AZ，CA，DC，DE，FL，GA，HI，ID，IL，IN，KY，LA，MA，MD，
horticulture	5	horticulture，forest，urban	FL，GA，HI，LA，PR.
horticulture	4	forest，urban，wild	HI.
not apply	5	urban，agriculture	AZ，CA，CO，IL，KS，NE，NM，NV，OK，TX，UT，WA.
horticulture	3	horticulture，urban	AL，AR，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，
horticulture	2	urban，wetland，wild	CT，IL，ME，MI，NY，OR，PA，WA；BC，NB，ON，QC.
horticulture，medicine	3	urban，wetland，wild	AK，AR，CA，CO，CT，DC，DE，GA，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，
horticulture，medicine	5	horticulture，urban，wild	FL，HI.
horticulture?	3	horticulture，urban，wild	AR，AZ，CA，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，ME，
horticulture	3	urban，pasture，wild	AK，AR，CA，CO，CT，FL，GA，IA，ID，IL，IN，KY，MA，MD，ME，MI，
horticulture	3	urban，pasture，wild	CT，DC，DE，GA，ID，IL，IN，KY，MA，MD，ME，MI，MN，MT，NC，NH，
horticulture	5	forest，urban，wild	FL，HI.
w/seeds	3	forest，wetland，urban	AK，AL，AR，AZ，CA，CO，CT，DC，DE，GA，HI，IA，ID，IL，IN，KS，KY，LA，MA，
industry	3	urban，horticulture，wild	AL，AR，CT，DC，DE，GA，IA，IL，IN，KS，KY，MA，MD，ME，MI，MN，
w/aquarium trade	1	aquatic	AL，AZ，CA，CT，DC，DE，FL，GA，IA，LA，MD，ME，MS，NC，PA，SC，
horticulture	4	aquatic	NY；ON，QC.
w/aquarium trade	4	aquatic	FL，TX，VA.
w/bird	4	aquatic	FL，PR.
medicine	3	wild，urban，horticulture	CO，CT，DE，IA，ID，IL，IN，MA，MD，ME，MI，MT，ND，NE，NH，NJ，
horticulture，medicine	3	agriculture，forest，pasture	AR，CA，CO，CT，DC，DE，GA，HI，IA，ID，IL，IN，KS，KY，LA，MA，MD，ME，MI，
horticulture	4	wetland，urban，horticulture	CA，CT，ID，MA，ME，MI，MT，NY，OR，VT，WA；BC，MB，NB，NF，
forage，environmental industry	3	agriculture，forest，urban	AL，FL，LA，MS，SC. PR.
forage，environmental industry	4	agriculture，forest，urban	AL，FL，GA，LA，MS，OR，SC，TX，VA.
fiber industry	5	urban，wild，pastures	AL，FL，GA，PR，SC.
vegetable	4	aquatic，wetland，urban	CA，FL，HI，PR.
w/seeds?	3	agriculture，forest，urban	AL，AR，AZ，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，
w/seeds?	3	agriculture，forest，urban	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，IL，IN，KS，KY，LA，
horticulture	3	wetland，aquatic，urban	AL，AR，CA，CT，DC，DE，FL，GA，ID，IL，IN，KS，KY，LA，MA，MD，ME，
fiber industry	3	urban，wild，wetland	CA，CO，DC，ID，IL，MT，NJ，NM，NV，NY，OR，UT，VA，WA，WV，
horticulture	5	horticulture，urban，forest	FL.
horticulture	5	horticulture，urban，forest	FL，HI，PR，VI.
horticulture	5	horticulture，urban，forest	FL，PR，VI.
horticulture	5	horticulture，urban，forest	FL，LA，MS，TX.
horticulture	3	pastures，desert，wild	AZ，CA，CO，CT，DE，IA，ID，IL，IN，KS，KY，LA，MA，ME，MI，MN，MO，
forage	3	pastures，forest，urban	AL，AR，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MD，MI，MO，MS，
forage?	3	pastures，forest，urban	AL，AR，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MD，MO，MS，
w/seeds? w/people?	3	agriculture，urban，horticulture	AL，AR，AZ，CA，DC，DE，GA，IA，IL，IN，KS，KY，LA，MD，MI，MO，
vegetable，medicine	3	urban，agriculture，horticulture	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/aquarium trade? w/people?	4	aquatic，wetland，urban	AL，AR，AZ，CA，DC，DE，FL，GA，HI，IL，KY，LA，MA，MD，MO，MS，
horticulture	3	horticuture，urban，wetland	AL，AZ，CA，FL，GA，HI，LA，MS，NC，OK，PR，SC，TX，VI，UT.
w/people? w/seeds? w/others	3	agriculture，urban，horticulture	AK，AR，AZ，CA，CO，CT，DC，GA，HI，IA，ID，IL，IN，KY，MA，MD，ME，
horticulture	3	horticulture，urban，wild	AL，AR，AZ，CA，CO，CT，DC，DE，GA，HI，IA，ID，IL，IN，KS，KY，LA，MA，MD，
not apply	3	aquatic，wetland，urban	AK，AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，MA，
medicine	3	pastures，uran，wild	AL,AR,AZ,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,MN,
w/seed	3	agriculture，wetland，urban	AZ，CA，CO，CT，ID，IL，IN，KS，MA，MO，MT，NE，NM，NV，NY，OR，
horticulture	4	urban，forest，horticulture	AL，AR，CT，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，MI，MO，
agriculture crop	3	agriculture，forest，pastrues	AL，AR，CT，DC，DE，FL，GA，HI，IA，IL，IN，KS，KY，LA，MA，MD，
horticulture	4	urban，forest，horticulture	AL，AR，CT，FL，GA，IL，IN，KY，LA，MA，MD，MI，MO，NC，NJ，NY，
fiber industry，environment，medicine	4	agricutlure，forest，pastures	AZ，CA，FL，TX.

MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,QC,SK.
MT, NC, NH, NJ, NY, OH, OR, PA, RI, TN, UT, VA, VT, WA, WI, WV, WY; BC, NB, NF, NS, ON, PE, QC.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.

MI, MO, MS, NC, NJ, NY, OH, OR, PA, SC, TN, TX, UT, VA, WA, WV; BC.

ME, MI, MN, MO, MS, MT, NC, NE, NH, NJ, NY, OH, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; NB, NS, ON, PE, QC.

MN, MO, MT, NC, ND, NE, NH, NJ, NV, NY, OH, OR, PA, RI, SD, TN, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NF, NS, NT, ON, PE, QC, SK.

MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; MB, NB, NS, ON, PE, QC, SK.
MN, MT, NC, NH, NJ, NY, OH, OR, PA, RI, SD, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NF, NS, ON, PE, QC, SK.
NJ, NY, OH, OR, PA, RI, SC, TN, VA, VT, WA, WI, WV, WY; BC, MB, NB, NF, NS, ON, PE, QC.

MD, ME, MI, MO, MS, MT, NC, ND, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, TN, TX, UT, VA, VT, WA, WI, WV; AB, BC, NB, NF, NS, ON, QC, SK.
MO, NC, ND, NE, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT, WI, WV; ON, QC.
TN, TX, VA, WA.

NM, NV, NY, OR, PA, SD, UT, VT, WA, WI, WY; AB, MB, NB, NS, ON, PE, QC, SK.
MN, MO, MS, MT, NC, ND, NE, NH, NJ, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, VA, VT, WA, WI, WV, WY; BC, MB, NB, NF, NS, ON, PE, QC.
NS, ON, PE, QC.

ME, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NM, NY, OH, OK, PA, SC, TN, TX, VA, WI, WV; ON.
MA, MD, ME, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV; ON, QC.
MI, MN, MO, MT, NC, NE, NH, NJ, NV, NY, OH, OR, PA, RI, SC, TN, TX, UT, VA, VT, WA, WI, WV; BC, MB, NB, NF, NS, ON, PE, QC.
WY; BC, NF, ON, QC.

MS, MT, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NS, ON, QC, SK.
NC, NE, NJ, NY, OH, OK, PA, SC, TN, TX, VA, WI, WV.
NC, NJ, NM, NY, OH, OK, PA, SC, TN, TX, VA, WV.
NC, NE, NJ, NM, NV, NY, OH, OK, OR, PA, SC, TN, TX, VA, WA, WI, WV; ON, QC.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,QC,SK.
NC, OK, OR, PA, SC, TN, TX, VA.

MI, MN, MO, MT, NC, ND, NJ, NY, OH, OK, OR, PA, RI, TN, TX, UT, VA, VT, WA, WI, WV; AB, BC, MB, NB, NF, NS, ON, PE, QC, SK.
ME, MI, MN, MO, MS, MT, NC, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; BC, NS, ON, QC.
MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; BC, MB, ON, QC, SK.
MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NS,ON,PE,QC,SK.
TX, UT, WA, WY; AB, BC, MB, QC.
MS, NC, NJ, NY, OH, PA, SC, TN, TX, VA, WV; ON.
MI, MO, MS, NC, NE, NJ, NY, OH, OK, PA, SC, TN, TX, VA, WI, WV; ON.
OH, PA, SC, VA, WI; ON.

Continuous table 6

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Leucanthemum vulgare	Ox-eye daisy	Asteraceae	perennial	Europe	1900s
Ligustrum japonicum	Japanese Privet	Oleaceae	shrub	Japan	1845
L. lucidum	Glossy Privet	Oleaceae	shrub	East Asia	1794
L. obtusifolium	Border Privet	Oleaceae	shrub	East Asia	1860
L. sinense	Chinese Privet	Oleaceae	shrub	East Asia	1852
L. vulgare	European Privet	Oleaceae	shrub	Europe & Mediterranean	colonial time
Limnophila sessiliflora	Asian Marshweed	Scrophulariaceae	perennial aquatic	Asia	<1965
Linaria genistifolia	Dalmatian Toadflax	Scrophulariaceae	perennial	Eurasia	1874
L. vulgaris	Yellow Toadflax	Scrophulariaceae	perennial	Eurasia	colonial time
Lithospermum arvense	Corn Gromwell	Boraginaceae	annual	Eurasia	unknown
Livistona chinensis	Chinese fan palm	Arecaceae	tree	East Asia	1800s
Lolium arundinaceum	Tall Fescue	Poaceae	perennial	Europe	1800s
L. perenne	Perennial Ryegrass	Poaceae	perennial	Europe & Mediterranean	unknown
L. pratense	Meadow Fescue	Poaceae	perennial	Eurasia	unknown
L. temulentum	Darnel Ryegrass	Poaceae	annual	Mediterranean	unknown
Lonicera fragrantissima	Fragrant honeysuckle	Caprifoliaceae	shrub	Eurasia	1845
L. japonica	Japanese Honeysuckle	Caprifoliaceae	woody vine	East Asia	1806
L. maackii	Amur honeysuckle	Caprifoliaceae	shrub	East & North Asia	1896
L. morrowii	Morrow's honeysuckle	Caprifoliaceae	shrub	Eurasia	1875
L. standishii	Standish's Honeysuckle	Caprifoliaceae	shrub	Eurasia	1845
L. tatarica	Tartarian honeysuckle	Caprifoliaceae	shrub	Eurasia	1752
L. xylosteum	Dwarf honeysuckle	Caprifoliaceae	shrub	Eurasia	colonial time
Lotus corniculatus	Birds-foot Trefoil	Fabaceae	perennial	Old World	1920s
Ludwigia grandiflora	Water Primrose	Onagraceae	aquatic shrub	North & South America	not apply
Lunaria annua	Silver dollar	Brassicaceae	annual/biennial	Europe	unknown
Lupinus arboreus	Yellow bush lupine	Fabaceae	shrub	North America	not apply
Lycopus europaeus	Gypsywort	Labiatae	perennial	Europe	unknown
Lygodium japonicum	Japanese Climbing Fern	Lygodiaceae	fern vine	Asia & Tropical Australia	1932
L. scandens	Old World climbing fern	Lygodiaceae	fern vine	Old Tropics	1965
Lysimachia nummularia	Creeping Jennie	Primulaceae	perennial	Europe & West Asia	unknown
Lythrum salicaria	Purple Loosestrife	Lythraceae	perennial	Eurasia	1814
Macfadyena unguis-cati	Cat's-claw vine	Bignoniaceae	woody wine	Tropical America	1947
Mahonia bealei	Beale's Oregon-grape	Berberidaceae	shrub	China	unknown
Manilkara zapota	Sapodilla	Sapotaceae	tree	Central America	colonial time
Marsilea quadrifolia	European waterclover	Marsileaceae	aquatic fern	Eurasia	1862
Medicago lupulina	Black Medic	Fabaceae	annual to perennial	Eurasia	colonial time
M. sativa	Alfalfa	Fabaceae	annual	Eurasia	colonial time
Melaleuca quinquenervia	Paperbark tree	Myrtaceae	tree	Australia to tropical Asia	1906
Melastoma candidum	Asian melastome	Melastomataceae	tree or shrub	Tropical Asia	1916
M. malabathricum	Bank's Melastoma	Melastomataceae	shrub	Tropical Asia to Australia	unknown
Melia azedarach	China berry tree	Meliaceae	tree	Tropical Asia to Australia	1830
Melilotus officinalis	Yellow sweetclover	Fabaceae	annual to perennial	Europe	1800s
Melinis minutiflora	Molasses Grass	Poaceae	perennial	Africa	unknown
Mentha pulegium	Pennyroyal	Lamiaceae	perennial	Europe	colonial time
Merremia tuberosa	Yellow Morning-glory	Convolvulaceae	perennial vine	Tropical America	unknown
Mesembryanthemum crystallinum	Crystalline iceplant	Aizoaceae	annual or biennial	South Africa	colonial time
Mikania cordata	Heartleaf hempvine	Asteraceae	perennial vine	Tropical Asia	unknown
M. micrantha	Falso Guaco	Asteraceae	perennial vine	Tropical America	unknown
Miconia calvescens	Velvet Tree	Melatomataceae	tree	Tropical America	1960
Microstegium vimineum	Japanese Stilt Grass	Poaceae	annual	East & South Asia	1919
Milium vernale	Spring Millet Grass	Poaceae	annual	Eurasia	1987
Mimosa pigra	Black Mimosa	Fabaceae	shrub	Central America	1953
M. diplotricha	Giant sensitive plant	Fabaceae	shrub	Central to South America	unknown
Miscanthus sinensis	Chinese Silvergrass	Poaceae	perennial	Asia	1900s

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
horticulture	3	pasture，wild，urban	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture	5	horticulture，urban，wild	AL，FL，GA，LA，MD，MS，NC，SC，TN，TX，VA.
horticulture	5	horticulture，urban，wild	AL，FL，GA，LA，MD，MS，NC，TX.
horticulture	5	horticulture，urban，wild	CT，DC，IL，IN，KY，MA，MD，MI，MO，NC，NH，NJ，NY，OH，PA，RI，
horticulture	5	horticulture，urban，wild	AL，AR，CT，FL，GA，KY，LA，MA，MD，MO，MS，NC，NJ，OK，RI，SC，
horticulture，medicine	5	urban，horticulture	AL，AR，CT，DC，DE，FL，GA，IL，IN，KY，LA，MA，MD，ME，MI，NC，
aquatic plant-Grass/Horticulture?	5	aquatic，wetland，urban	FL，GA，TX.
horticulture	3	pasture，agriculture，forest	AZ，CA，CO，ID，IL，IN，KS，MA，ME，MI，MN，MT，ND，NE，NH，NM，
horticulture	3	agriculture，pasture，urban	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture? Medicine?	3	urban，wild，horticulture	AL，AR，CA，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，
horticulture	5	urban，horticulture，wetland	FL，HI.
forage	3	pastures，uran，wild	AK，AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，KS，KY，LA，MA，MD，
forage	3	pastures，uran，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
forage	3	pastures，uran，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
forage	3	agriculture，pasture，urban	AK，AL，AR，AZ，CA，CT，DE，FL，GA，HI，IA，ID，IL，KS，KY，LA，MA，MD，ME，
horticulture	5	horticulture，urban，wild	AL，GA，KY，LA，MD，MS，NC，NY，OH，PA，SC，TN，UT，VA.
horticulture	3	urban，forest，horticulture	AL，AR，AZ，CA，CT，DC，DE，FL，GA，HI，IL，IN，KS，KY，LA，MA，
horticulture	3	urban，forest，horticulture	AR，DC，DE，GA，IA，IL，IN，KS，KY，MA，MD，MI，MO，MS，NC，ND，
horticulture	3	urban，forest，horticulture	AR，CO，CT，DC，DE，IA，IL，KY，MA，MD，ME，MI，MN，MO，NC，NH，
horticulture	5	horticulture，urban，wild	IL，KY，MD，NY，PA，VA.
horticulture	3	urban，forest，horticulture	AK，CA，CO，CT，DC，DE，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，
horticulture	5	horticulture，urban，wild	CT，DC，IL，IN，MA，MD，ME，MI，MO，NH，NJ，NY，OH，OR，PA，RI，
w/people? w/seeds?	3	agriculture，pastures，urban	AL,AR,AZ,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,MA,MD,ME,MI,MN,
not apply	4	aquatic，wetland，urban	AL，AR，CA，DC，FL，GA，KY，LA，MO，MS，NC，NJ，NY，OK，OR，
horticulture?	3	urban，agriculture，horticulture	AR，CA，CO，CT，DC，DE，GA，ID，IL，IN，KY，MA，MD，ME，MI，MN，
Environmental Industry	5	shoreline，urban，wild	CA，OR，WA；BC.
medicine?	5	wetland，urban，wild	AL，DE，IL，IN，LA，MA，MD，MI，MS，NC，NJ，NY，OH，PA，VA，WI，
horticulture	4	forest，wetland，urban	AL，AR，FL，GA，HI，LA，MS，NC，PA，PR，SC，TX.
horticulture	4	forest，wetland，urban	FL.
horticulture	3	urban，horticulture，wetland	AL，AR，CA，CO，CT，DC，DE，GA，IA，IL，IN，KS，KY，LA，MA，MD，
horticulture	1	wetland，urban，wild	AL，AR，CA，CO，CT，DC，DE，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，MN，
horticulture	4	forest，pastures，urban	FL，GA，HI，LA，PR，SC，TX，VI.
horticulture	5	forest，urban，horticulture	AL，DC，FL，GA，MD，NC，SC，VA.
fruit	5	horticulture，urban，wild	FL，PR，VI.
horticulture	3	aquatic，wetland，urban	CT，DC，DE，GA，IA，IL，IN，KY，MA，MD，ME，MI，MO，NC，NJ，NY，
w/people? w/seeds? Or forage?	3	agriculture，pastures，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,
forage	3	agriculture，pastures，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture	4	forest，wetland，urban	FL，HI，LA，PR.
horticulture	4	forest，wild，urban	HI.
medicine?	5	horticulture，urban，wild	HI.
horticulture	3	horticulture，forest，urban	AL，AR，AZ，CA，FL，GA，HI，LA，MO，MS，NC，NM，NY，OK，SC，TN，
forage	3	pastures，agriculture，urban	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
forage	5	pastures，agriculture，urban	FL，HI，PR.
medicine?	5	wetland，urban，wild	CA，HI，MD，NJ，OR，PA，WA；BC.
horticulture?	5	agriculture，forest，urban	FL，HI，PR，TX，VI.
w/ballet	5	horticulture，urban，wild	AZ，CA，PA.
w/people? w/seeds?	4	forest，urban，wild	AL，FL，GA，LA，MS，TX.
w/people? w/seeds?	5	forest，urban，wild	DC，PR.
horticulture	4	urban，forest，wetland	HI.
w/industry	3	agriculture，forest，wetland	AL，AR，CT，DC，DE，FL，GA，IL，IN，KY，LA，MA，MD，MO，MS，NC，
unknown	5	agriculture，pasture，urban	ID.
horticulture	4	wetland，agriculture，urban	FL，TX，PR.
horticulture?	5	wetland，agriculture，urban	HI，PR.
horticulture	3	urban，horticulture，wetland	AL，CA，CO，CT，DC，DE，FL，GA，IL，KY，LA，MA，MD，MI，MO，MS，

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.

TN, VA, VT.
TN, TX, VA.
NH, NJ, NY, OH, PA, RI, SC, TN, TX, UT, VA, VT, WI, WV; BC, NS, ON.

NV, NY, OH, OK, OR, PA, SD, UT, VT, WA, WI, WY; AB, BC, MB, NB, NF, NS, NT, ON, PE, QC, SK, YT.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; BC, MB, NS, ON, QC.

ME, MI, MN, MO, MS, MT, NC, NE, NM, NV, NY, OH, OK, OR, PA, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; AB, BC, NB, NF, NS, ON, QC, SK, YT.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK,YT.
MI, MN, MO, MS, MT, NC, ND, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, VA, VT, WA, WI , WV, WY; AB, BC, MB, NB, NF, ON, QC, SK, YT.

MD, ME, MI, MO, MS, NC, NE, NH, NJ, NM, NV, NY, OH, OK, PA, RI, SC, TN, TX, UT, VA, WI, WV; ON.
NE, NJ, NY, OH, PA, SC, TN, TX, VA, WI, WV; ON.
NJ, NM, NY, OH, PA, RI, SC, TN, VA, VT, WI, WV, WY; NB, ON, QC, SK.

MN, MT, ND, NE, NH, NJ, NM, NY, OH, OR, PA, RI, SD, UT, VA, VT, WI, WV, WY; AB, MB, NB, NS, ON, QC, SK.
VA, VT, WI; NB, ON, QC.
MO,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK,YT.
PA, SC, TN, TX, VA, WA, WV.
MT, NC, NY, OH, OR, PA, RI, TN, UT, VA, VT, WA, WV; BC, MB, NS, ON, QC.

WV; BC, NS, ON, QC.

ME, MI, MN, MO, MS, NC, NE, NH, NJ, NV, NY, OH, OR, PA, RI, SC, TN, VA, VT, WA, WI, WV; BC, NB, NF, NS, ON, PE, QC.
MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NF, NS, ON, PE, QC, SK.

OH, PA; ON.
ME,MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.

TX, UT, VA.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.

NJ, NY, OH, PA, SC, TN, TX, VA, WV, PR.

NC, NJ, NY, OH, PA, RI, SC, TN, VA, WV; ON.

Continuous table 7

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Monochoria vaginalis	Cordate Monochoria	Pontederiaceae	annual to biennial aquatic	Tropical Asia	unknown
Morella faya	Fire Tree	Myricaceae	shrub	Africa	1800s
Morus alba	White mulberry	Moraceae	tree	China	colonial time
Mosla dianthera	Miniature beefsteakplant	Lamiaceae	annual	Asia	unknown
Murdannia keisak	Marsh Dewflower	Commelinaceae	annual	East Asia	1935
Murraya exotica	Orange Jasmine	Rutaceae	tree	Tropical Asia to Australia	unknown
Myosotis scorpioides	Water Forget me not	Boraginaceae	perennial	Eurasia	colonial time?
Myriophyllum aquaticum	Parrot Feather Watermilfoil	Haloragaceae	perennial aquatic	South America	1890
M. spicatum	Eurasian Watermilfoil	Haloragaceae	perennial aquatic	Old World	<1940s
Najas minor	Brittle waternymph	Najadaceae	annual aquatic	Europe	1930s
Nandina domestica	Nandina	Berberidaceae	shrub	Asia	1804
Nardus stricta	Moor-mat Grass	Poaceae	perennial	Old World	<1950s
Nepeta cataria	Catnip	Lamiaceae	perennial	Eurasia	unknown
Nephrolepis cordifolia	Erect sword fern	Dryopteridaceae	fern	Tropical Asia to Australia	<1930s
N. hirsutula	Asian Sword fern	Dryopteridaceae	fern	Old Tropics	unknown
Nerium oleander	Oleander	Apocynaceae	tree，shrub	Old World	unknown
Neyraudia reynaudiana	Burma Reed	Poaceae	perennial	Tropical Asia	1916
Nymphoides peltata	Floating heart	Menyanthaceae	perennial aquatic	Eurasia	1880
Oeceoclades maculata	Spotted African Orchis	Orchidaceae	perennial aquatic	Africa	1974
Onopordum acanthium	Scotch Cotton-thistle	Asteraceae	biennial	Eurasia	1800s
Ochrosia elliptica	Elliptic yellowwood	Apocynaceae	tree	Southeast Asia to Australia	unknown
Origanum vulgare	Wild marjoram	Lamiaceae	perennial	Eurasia	colonial time?
Ornithogalum umbellatum	Common Star-of-bethlehem	Liliaceae	perennial	Europe	unknown
Orobanche minor	Common Broomrape	Orobanchaceae	annual/perennial parasitic	Mediterranean & Europe	unknown
O. ramosa	Branched Broomrape	Orobanchaceae	annual/perennial parasitic	Europe	unknown
Oryza sativa	Cultivated Rice	Poaceae	annual	Tropical Asia	unknown
Ottelia alismoides	Duck-lettuce	Hydrocharitaceae	perennial aquatic	Tropical Asia to Oceania	1939
Oxalis stricta	Yellow Wood-sorrel	Oxalidaceae	annual/perennial	North Temperate	not apply
Paederia foetida	Skunk vine	Rubiaceae	woody vine	Tropical Asia	<1897
Panicum miliaceum	Proso Millet	Poaceae	annual	Asia	colonial time?
P. repens	Torpedo grass	Poaceae	perennial	Old Tropics	<1876
Papaver rhoeas	Corn poppy	Papaveraceae	annual	Mediterranean & Europe	colonial time?
Paspalum conjugatum	Hilograss	Poaceae	perennial	Tropical America	not apply
P. dilatatum	Dallisgrass	Poaceae	perennial	South America	<1842
P. notatum	Bahia Grass	Poaceae	perennial	Tropical America	not apply
P. scrobiculatum	India Paspalum	Poaceae	annual/perennial	Tropical Asia	colonial time?
Pastinaca sativa	Wild Parsnip	Apiaceae	biennial/perennial	Europe	before colonial time
Paulownia tomentosa	Princess Tree	Scrophlariaceae	tree	China	1834
Peganum harmala	Harmel Peganum	Zoggophyllaceae	perennial	Meditterean	1931
Pennisetum clandestinum	Kikuyu grass	Poaceae	perennial	east tropical Africa	1918
P. macrourum	African feathergrass	Poaceae	perennial	Africa，Yemen	unknown
P. pedicellatum	Kyasuma grass	Poaceae	annual	Africa，India	unknown
P. polystachion	West Indies Pearl-millet	Poaceae	perennial	Africa，India	unknown
P. purpureum	Napier grass	Poaceae	perennial	Africa	1913
P. setaceum	Fountain Grass	Poaceae	perennial	North Africa	1914
Perilla frutescens	Beef-steak Plant	Lamiaceae	annual	Asia	unknown
Phalaris aquatica	Harding Grass	Poaceae	perennial	Mediterranean	unknown
P. arundinacea	Reed canary grass	Poaceae	perennial	North Temperate	not apply
Phyllanthus tenellus	Maricao	Euphorbiaceae	annual	Tropical Asia	unknown
Phleum pratense	Meadow Timothy	Poaceae	perennial	Eurasia	colonial time?
Phoenix reclinata	Senegal date palm	Arecaceae	tree	Africa	unknown
Phormium tenax	New Zealand flax	Agavaceae	subshrub	New Zealand	unknown
Phragmites australis	Common Read	Poaceae	perennial	Northern Temperate	not apply
Phyllostachys aurea	Golden Bamboo	Poaceae	tree	China	1882

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
unknown	5	aquatic，wetland，urban	CA，HI.
horticulture，medicine	4	agriculture，forest，urban	HI.
industry	3	urban，forest，horticulture	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，LA，MA，
unknown	5	urban，wild，horticulture	GA，IN，KY，NC，TN.
unknown	5	wetland，aquatic，urban	AL，AR，DE，FL，GA，KY，LA，MD，MS，NC，OR，SC，TN，VA，WA.
unknown	5	urban，forest，wild	FL，PR，VI.
horticulture? w/people?	3	urban，horticulture，pastures	AK，AL，AR，AZ，CA，CO，CT，DC，DE，GA，ID，IL，IN，KY，LA，MA，MD，ME，
horticulture	2	aquatic，wetland，urban	AL，AR，AZ，CA，CT，DC，DE，FL，GA，HI，ID，KS，KY，LA，MD，MO，
w/ballet	1	aquatic，wetland，urban	AK，AL，AR，AZ，CA，CO，CT，DE，FL，GA，IA，IL，IN，KY，LA，MA，MD，
w/ballet?	3	aquatic	AL，AR，CT，DE，FL，GA，IL，IN，KY，LA，MA，MI，MO，MS，NC，NH，
horticulture	5	horticulture，urban，wild	AL，FL，GA，LA，MS，NC，SC，TX，VA.
?	5	pastures，urban，wild	ID，MA，MI，NH，NY，OR，VT；NF，NS，ON，QC.
medicine?	3	urban，wild，wetland	AK,AL,AR,AZ,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture?	5	forest，urban，wetland	AL，FL，GA，HI，PR，VI.
horticulture?	5	urban，horticulture，forest	HI.
horticulture，medicine	4	horticulture，urban，wild	AL，AZ，CA，FL，GA，LA，MS，NC，SC，TX，UT，PR，VI.
horticulture	4	agriculture，forest，urban	FL.
horticulture	3	aquatic，wetland，urban	AR，AZ，CA，CT，DC，DE，IL，IN，KY，LA，MA，MD，MO，MS，NH，NJ，
horticulture?	5	agriculture，forest，urban	FL，PR，VI.
horticulture	2	agriculture，pastures，urban	AL，AZ，CA，CO，CT，DC，DE，FL，IA，ID，IL，IN，KS，KY，MA，MD，
horticulture? forest?	5	urban，horticulture，wild	FL.
horticulture，food	5	urban，horticulture，wild	AR，CA，CT，DE，IL，MA，MD，MI，NC，NJ，NY，OH，OR，PA，VA，
horticulture?	3	urban，horticulture，wild	AL，AR，CA，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，
w/seed	3	urban，horticulture，wild	DC，DE，FL，GA，MD，NC，NJ，NY，OR，PA，SC，VA，VT，WA，WV.
w/seed	5	urban，horticulture，wild	CA，IL，KY，NC，NJ，TX.
food	5	agriculture，urban，wetland	AL，AR，CA，GA，IL，LA，MO，MS，NC，OK，SC，TN，TX，VA，PR，VI.
w/seed	4	aquatic，wetland，urban	CA，LA，MO，TX.
not apply	3	horticulture，urban，wild	AL，AR，AZ，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，ME，
fiber industry	4	forest，urban，wetland	FL，GA，HI，LA，NC，SC，TX.
food	3	agriculture，urban，wild	AL，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，LA，MA，MD，
horticulture，forage	2	agriculture，wetland，urban	AL，CA，FL，GA，HI，LA，MS，NC，SC，TX.
horticulture? food?	3	urban，agriculture，horticulture	AK，AL，AR，CA，CT，DC，FL，IA，ID，IL，KS，KY，LA，MA，ME，MI，
not apply	5	agriculture，urban，horticulture	AL，FL，HI，LA，MS，PR，TX，UT，VI.
horticulture	3	agriculture，horticulture，urban	AL，AR，AZ，CA，CO，DC，FL，GA，HI，IL，KY，LA，MD，MO，MS，NC，
not apply	3	pasture，horticulture，agriculture	AL，AR，CA，FL，GA，HI，IL，LA，MS，NC，NJ，OK，PR，SC，TN，TX，
w/seed? w/people?	4	agriculture，pastures，urban	AL，GA，HI，MD，NJ，TX.
food，vegetable	2	agriculture，horticulture，urban	AK,AR,AZ,CA,CO,CT,DC,DE,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture	3	forest，urban，wetland	AL，AR，CT，DC，DE，FL，GA，IL，IN，KY，LA，MA，MD，MO，MS，NC，
medicine，dye-industry，religious	5	urban，wild，wetland	AZ，CA，MT，NM，NV，OR，TX，WA.
forage，horticulture	4	forest，pasture，urban	CA，HI，PR，VI.
forage，horticulture	5	urban，wild，wetland	CA，HI，TX.
forage，horticulture	5	urban，wild，wetland	FL.
forage，horticulture	5	urban，wild，wetland	FL，HI，PR.
forage	4	pasture，urban，horticulture	CA，FL，HI，PR，TX，VI.
horticulture	4	desert，pastures，urban	AZ，CA，CO，FL，HI，LA，NM，OR，TN.
medicine，horticulture	3	horticulture，urban，wild	AL，AR，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，MI，
forage	5	agriculture，urban，wetland	AZ，CA，DC，HI，MS，MT，NC，OR，SC，TX，VA.
not apply	3	wetland，aquatic，urban	AK,AL,AR,AZ,CA,CO,CT,DC,DE,IA,ID,IL,IN,KS,KY,MA,MD,ME,MI,
unknown	5	urban，horticulture，wild	AL，FL，GA，HI，LA，MS，NC，PR，SC，TN，TX.
forage?	3	pasture，agriculture，wetland	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
fruit，horticulture	5	horticulture，urban，wild	FL.
horticulture，fiber industry	5	wetland，aquatic，urban	HI.
not apply	2	aquatic，wetland，agriculture	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture，forest	4	urban，wild，wetland	AL，AR，CA，FL，GA，LA，MD，MS，NC，OR，SC，TN，TX，VA.

MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; BC, ON, QC.

MI, MN, MO, MS, MT, NC, NH, NJ, NM, NV, NY, OH, OR, PA, RI, SD, TN, UT, VA, VT, WA, WI, WV, WY; BC, MB, NB, NF, NS, ON, PE, QC, YT.
MS, MT, NC, NJ, NM, NY, OH, OK, OR, PA, SC, TN, TX, VA, WV; BC.
MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV; BC, NB, ON, QC.
NJ, NY, OH, OK, PA, SC, TN, VA, VT, WV; ON.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.

NY, OH, OK, PA, RI, TN, TX, VT, WA; ON, QC.

MI, MN, MO, MT, NE, NJ, NM, NV, NY, OH, OK, OR, PA, RI, TX, UT, VA, VT, WA, WI, WV, WY; BC, MB, NB, NS, ON, QC.

VT, WA; BC, NS, ON, PE, QC.
ME, MI, MN, MO, MS, NC, NE, NH, NJ, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV; BC, NB, NF, NS, ON, QC.

MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WA, WI, WV, WY; BC, MB, NB, NF, NS, ON, PE, QC, SK.

ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WY; AB, BC, MB, NB, NS, ON, PE, QC, SK.

MN, MO, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OR, PA, SC, TN, TX, UT, VA, VT, WA, WI, WV; BC, MB, NB, NS, ON, QC, SK.

NJ, NM, OK, OR, SC, TN, TX, VA, WV.
VA, VI.

MN,MO,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
NJ, NY, OH, OK, PA, RI, SC, TN, TX, VA, WV.

MN, MO, MS, NC, NE, NJ, NY, OH, OK, PA, SC, TN, TX, VA, WV; ON.

MN,MO,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SD,TN,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK.

Continuous table 8

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Picea abies	Norway spruce	Pinaceae	tree	Eurasia	colonial time?
Pinus sylvestris	Scots pine	Pinaceae	tree	Europe	colonial time?
P. thunbergiana	Japanese Black Pine	Pinaceae	tree	East Asia	1855
Pistia stratiotes	Waterlettuce	Araceae	perennial aquatic	tropics	not apply
Plantago aristata	Large-bract Plantain	Plantaginaceae	annual/perennial	USA	not apply
P. lanceolata	English Plantain	Plantaginaceae	annual/biennial/perennial	Europe	unknown
Poa annua	Annual Bluegrass	Poaceae	annual	Europe	unknown
P. compressa	Canada Bluegrass	Poaceae	perennial	Old World	unknown
P. pratensis	Kentucky Bluegrass	Poaceae	perennial	Old World	unknown
P. trivialis	Scribner Bluegrass	Poaceae	perennial	Eurasia	unknown
Polygonum aviculare	Prostrate knotweed	Polygonaceae	annual	Eurasia	unknown
P. posumbu	Asiatic Water Pepper	Polygonaceae	annual	Asia	1910
P. perfoliatum	Mile a Minute Weed	Polygonaceae	annual vine	Asia	1930s
P. persicaria	Lady's Thumb	Polygonaceae	annual	Eurasia	unknown
Poncirus trifoliata	Hardy Orange	Rutacea	tree	China	1850
Populus alba	White Poplar	Salicaceae	tree	Eurasia	1748
P. nigra	Lombardy poplar	Salicaceae	tree	Europe	colonial time?
Potamogeton crispus	Curly pondweed	Potamogetonaceae	perennial aquatic	Eurasia	1840
Potentilla recta	Sulphur Cinquefoil	Rosaceae	perennial	Eurasia	<1900
Prunella vulgaris	Self-heal	Lamiaceae	perennial	North Temperate	not apply
Psidium cattleianum	Purple Strawberry Guava	Myrtaceae	shrub	Brasil	1884
P. guajava	Common Guava	Myrtaceae	shrub	Tropical America	1765
Pteris vittata	Ladder Brake	Pteridaceae	fern	Asia	unknown
Ptychosperma elegans	Alexander Palm	Arecaceae	tree	Australia	unknown
Pueraria montana	Kudzu	Fabaceae	perennial vine	Asia	1876
Pyrus calleryana	Bradford Pear	Rosaceae	tree	Asia	1908
Quercus acutissima	Sawtooth Oak	Fagaceae	tree	East Asia	1862
Ranunculus bulbosus	Bulbous Butter-cup	Ranunculaceae	perennial	Europe	colonial time?
R. ficaria	Lesser Celandine	Ranunculaceae	perennial	Old World	unknown
R. repens	Creeping buttercup	Ranunculaceae	perennial	Old World	unknown
Raphanus raphanistrum	Wild Radish	Brassicaceae	annual/biennial	Eurasia	unknown
Rapistrum rugosum	Annual Bastard-Cabbage	Brassicaceae	annual	Old World	unknown
Rhamnus cathartica	Common Buckthorn	Rhamnaceae	tree or shrub	Eurasia	unknown
Reynoutria japonica	Japanese Knotweed	Polygonaceae	perennial	East Asia	1800s
Rhodotypos scandens	Jetbead	Rosaceae	shrub	East Asia	1866
Rhodomyrtus tomentosa	Downy rose myrtle	Myrtaceae	shrub	Tropical Asia	1920
Rhoeo spathacea	Oyster plant	Commelinaceae	perennial	Central America	<1933
Ricinus communis	Castor bean	Euphorbiaceae	annual to pennial shrub	Tropical Africa	colonial time?
Robinia pseudoacacia	Black Locust	Fabaceae	tree	se USA	not apply
Rorippa sylvestris	Creeping Yellow-cress	Brassicaceae	annual/perennial	Eurasia	unknown
Rosa multiflora	Multiflora Rose	Rosaceae	shrub	East Asia	1868
R. bracteata	Macartney rose	Rosaceae	shrub	East Asia	1793
R. eglanteria	Sweetbriar	Rosaceae	shrub	Europe	colonial time?
R. laevigata	Cherokee rose	Rosaceae	shrub	South Asia	1790
R. rugosa	Japanese rose	Rosaceae	shrub	East Asia	1845
Rottboellia cochinchinensis	Itchgrass	Poaceae	annual	Old World Tropics	unknown
Rubus argutus	Sawteeth Blackberry	Rosaceae	subshrub	S & SE USA	not apply
R. discolor	Himalayan Blackberry	Rosaceae	shrub	N Africa & W Europe	1885
R. ellipticus	Yellow Himalayan Raspberry	Rosaceae	shrub	E & S Asia	1960
R. phoenicolasius	Wineberry	Rosaceae	shrub	E Asia	1890
Ruellia caerulea	Britton's Wild-Petunia	Acanthaceae	subshrub	Tropical America	unknown
Rumex acetosella	Sheep Sorrel	Polygonaceae	perennial	Eurasia	1870s
R. crispus	Curly Dock	Polygonaceae	perennial	Eurasia	unknown
Saccharum spontaneum	Wild Sugar-cane	Poaceae	perennial	Old World Tropics	unknown

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
forestry，horticulture	5	horticulture，urban，forest	CT，IL，KY，MA，MD，ME，MI，MN，NC，NH，NJ，NY，OH，PA，RI，
forestry，horticulture	5	horticulture，urban，forest	CT，DE，，IA，IL，IN，MA，MD，ME，MI，MN，NH，NJ，NY，OH，PA，
horticulture	5	horticulture，urban，forest	DE，MA，NC，NJ，NY，SC，VA.
not apply	4	aquatic，wetland，urban	AZ，CA，CO，DE，FL，GA，HI，KS，LA，MD，MO，MS，NC，NJ，NY，OH，
not apply	3	urban，agriculture，horticulture	AL，AR，CA，CT，DC，DE，FL，GA，HI，IA，IL，IN，KS，KY，LA，MA，
w/seed? w/people?	3	urban，agriculture，horticulture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,
w/seed? w/people?	3	agriculture，pastures，wetland	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
w/seed? w/people?	3	agriculture，pastures，wetland	AK,AL,AR,AZ,CA,CO,CT,DC,DE,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/seed? w/people?	3	agriculture，pastures. Urban	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/seed? w/people?	3	agriculture，pasture，horticulture	AK，AL，CA，CO，CT，DC，DE，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，ME，
w/seed? w/people?	3	agriculture，urban，horticulture	AK,AL,AR,AZ,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
w/seed? w/people?	3	agriculture，urban，horticulture	AL，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，ME，MI，
w/seed	4	forest，urban，wetland	DC，DE，MD，NJ，NY，OH，OR，PA，VA，WV.
w/seed? w/people?	3	forest，urban，wetland	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture	5	horticulture，urban，wetland	AL，AR，DE，FL，GA，LA，MD，MS，NC，OK，PA，SC，TN，TX，VA，WV.
horticulture	3	agriculture，forest，urban	AL，AR，CA，CO，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，ME，MI，
horticulutre	3	agriculture，forest，urban	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，
w/boat	3	aquatic，wetland，urban	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，MA，MD，
horticulutre?	3	urban，horticulture，wild	AL,AR,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
not apply	3	urban，horticulture，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
horticulture，fruit	4	agriculture，forest，urban	FL，HI，PR.
fruit，medicine	4	agriculture，forest，urban	FL，HI，LA，PR，VI.
horticulture?	5	urban，forest，horticulture	AL，CA，DC，FL，GA，HI，LA，MS，PR，SC，TX，VI.
horticulture	5	horticulture，urban，forest	FL.
horticulture，forage，environmental industry	1	forest，wild，urban	AL，AR，CT，DC，DE，FL，GA，HI，IL，IN，KS，KY，LA，MA，MD，ME，
horticulture	5	forest，horticulture，urban	AL，AR，DC，DE，FL，GA，IL，IN，KY，LA，MD，MS，NC，NJ，OH，OK，
horticulture	5	horticulture，urban，wild	AL，GA，LA，MD，MS，NC，PA，VA.
medicine，horticulture	3	pastures，urban，horticulture	AL，AR，CA，CT，DC，DE，GA，IL，IN，KS，KY，LA，MA，MD，ME，MI，
horticulture	3	forest，urban，wetland	CT，DC，DE，IL，KY，MA，MD，MI，MO，NH，NJ，NY，OH，OR，PA，
horticulture?	3	pasture，horticulture，urban	AK，AL，AR，CA，CO，CT，DC，DE，HI，IA，ID，IL，IN，KY，MA，MD，ME，MI，MN，
w/people?	3	pasture，horticulture，urban	AL，AZ，CA，CO，CT，DE，FL，GA，HI，IA，IL，IN，KS，KY，LA，MA，MD，ME，MI，
w/seed? w/people?	3	urban，agriculture，wild	CA，HI，IL，IN，LA，MA，MO，NJ，NM，NV，NY，OR，PA，SC，TN，TX，
horticulture	3	forest，urban，wild	CA，CO，CT，DE，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，
horticulture，environmental industry	1	urban，wetland，shoreland	AK,AR,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD，ME，
horticulture	5	horticulture，urban，forest	AL，CT，DC，DE，IL，IN，KY，MA，MO，NH，NJ，NY，OH，PA，SC，VA，
horticulture，fruit	4	forest，wetland，urban	FL，HI.
horticulture	4	forest，urban，wild	FL，HI，LA，PR，VI.
oil crops，horticulture	3	wetland，urban，agriculture	AL，AZ，CA，CT，DC，DE，FL，GA，HI，IL，KS，LA，MA，MD，MI，MO，
not apply	3	agriculture，forest，urban	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
w/seed? w/people?	3	horticulture，urban，agriculture	AK,AL,AR,AZ,CO，CT，DC，DE,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
horticulture	3	agriculture，forest，urban	AL，AR，CA，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，
horticulture	3	pastures，forest，urban	AL，AR，FL，GA，KY，LA，MD，MS，NC，SC，TN，TX，VA.
horticulture	3	horticulture，urban，forest	AL，AR，CA，CO，CT，DC，DE，GA，ID，IL，IN，KS，KY，MA，ME，MI，
horticulture	3	horticulture，urban，forest	AL，FL，GA，HI，LA，MS，NC，SC，TX，VA.
horticulture	3	horticulture，urban，shoreland	AK，CT，DE，IL，MA，MD，ME，MI，MN，MO，NH，NJ，NY，OH，PA，
w/seed? w/people?	3	agriculture，pasture，urban	AR，FL，GA，IN，LA，MS，NC，PR，TX.
not apply	5	horticulture，urban，forest	AL，AR，CT，DE，FL，GA，HI，IL，IN，KY，LA，MA，MD，ME，MO，MS，
agriculture，fruit	3	agriculture，forest，wetland	AL，AR，AZ，CA，CO，DC，DE，HI，ID，IL，KY，MA，MO，MT，NJ，NM，
agriculture，fruit	4	agriculture，forest，urban	HI.
agriculture，fruit	3	agriculture，forest，horticulture	AR，CT，DC，DE，GA，IL，IN，KY，MA，MD，MI，NC，NJ，NY，OH，PA，
horticulture?	5	horticulture，forest，urban	AL，FL，GA，HI，LA，MS，PR，SC，TX，VI.
w/seed? w/people?	3	agriculture，forest，urban	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
w/seed? w/people?	3	urban，agriculture，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/seed? w/people?	5	urban，wetland，aquatic	HI，PR.

VA, VT, WI, WV; NB, NF, NS, ON, QC.
RI, VT, WI; AB, BC, MB, NB, NF, NS, ON, PE, QC.

SC, TX, PR, VI.
MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, VA, VT, WA, WI, WV; NS, ON, YT.
ME,MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK,YT.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,NU,ON,PE,QC,SK,YT.
MI, MN, MO, NC, NE, NH, NJ, NM, NV, NY, OH, OR, PA, RI, SD, TN, UT, VA, VT, WA, WI, WV, WY; BC, NB, NF, NS, ON, PE, QC, SK, YT.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MN, MO, MS, NC, NE, NJ, NM, NY, OH, PA, SC, TN, TX, VA, VT, WI, WV; BC, NB, ON, QC, SK.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK,YT.

MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; BC, MB, NB, NS, ON, PE, QC.
ME, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WI, WV, WY; BC, NS, ON, PE, QC.
MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; AB, BC, ON, QC, SK.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK,YT.

MO, MS, NC, NE, NJ, NY, OH, OK, OR, PA, SC, TN, TX, VA, WA, WV.
PA,SC, TX, VA, WV.

MO, MS, NC, NE, NH, NJ, NY, OH, OR, PA, RI, SC, TN, VA, VT, WA, WV; BC, NF, NS, ON, QC.
RI, TN, VA, WA, WI, WV; BC, NF, ON, QC.
MO, MS, MT, NC, NH, NJ, NV, NY, OH, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NF, NS, ON, PE, QC, YT.
MN, MO, MS, MT, NC, ND, NH, NJ, NV, NY, OH, OR, PA, RI, SC, TN, TX, VA, VT, WA, WI, WV; AB, BC, MB, NB, NF, NS, ON, PE, QC, SK.
WI; ON, QC.
MT, NC, ND, NE, NH, NJ, NY, OH, PA, RI, SD, TN, UT, VA, VT, WI, WV, WY; AB, MB, NB, NS, ON, PE, QC, SK.
MI,MN,MO,MS,MT,NC,NE,NH,NJ,NY,OH,OK,OR,PA,RI,SC,SD,TN,UT,VA,VT,WA,WI,WV; BC,MB,NB,NF,NS,ON,PE,QC.
VT, WI, WV.

MS, NC, NH, NJ, NY, OH, PA, SC, TN, TX, UT, VA, PR, VI.
MI,MN, MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; BC,NB,NS,ON,PE,QC.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OR,PA,RI,TN,UT,VA,VT,WA,WI,WV; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
ME, MI, MN, MO, MS, NC, NE, NH, NJ, NM, NY, OH, OK, OR, PA, RI, SC, TN, TX, VA, VT, WA, WI, WV; BC, NB, NS, ON, QC.

MN, MO, MS, MT, NC, NH, NJ, NY, OH, OR, PA, RI, SC, TN, UT, VA, VT, WA, WI, WV; BC, NB, NF, NS, ON, PE, QC.

RI, VA, VT, WA, WI, WV, NB, NF, NS, ON, PE, QC.

NC, NJ, OH, PA, RI, SC, TN, TX, VA, WV.
NV, OH, OR, PA, TN, UT, VA, WA; BC, ON.

RI, SC, TN, VA, VT, WV.

MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK,YT.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.

Continuous table 9

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Salsola kali	Russian Thistle	Chenopodiaceae	annual	S Europe，SW Asia，N Africa	1800s
S. vermiculata	Shrubby Russian Thistle	Chenopodiaceae	perennial	S Europe	1800s
Salvia aethiopis	Mediterranean Sage	Lamiaceae	biennial	S & SE Europe	1951
Salvinia minima	Eared Water-moss	Salviniaceae	aquatic fern	Tropical America	1880s
S. molesta	Giant Salvinia	Salviniaceae	aquatic fern	Tropical America	1985
Sansevieria hyacinthoides	Sweet Sansevieria	Agavaceae	subshrub	Tropical Africa	colonial time?
Sapium sebiferum	Chinese Tallow Tree	Euphorbiaceae	tree	East Asia	1776
Scaevola sericea	Beach Naupaka	Goodeniaceae	shrub	Old Tropics	<1976
Schefflera actinophylla	Octopus Tree	Araliaceae	tree	Old Tropics	1927
Schinus terebinthifolius	Brasilian Peppertree	Anacardiaceae	tree	South America	1840s
Schismus arabicus	Mediterranean Grass	Poaceae	annual	Mediterranean	<1940
S. barbatus	Arabian Schismus	Poaceae	annual	Mediterranean	<1940
Senecio jacobaea	Tansy Ragwort	Asteraceae	perennial	Europe	1913
S. madagascariensis	Madagascar Ragwort	Asteraceae	annual/biennial	Madagascar	1980s
S. vulgaris	Common Groundsel	Asteraceae	annual	Eurasia	colonial time?
Senna obtusifolia	Blunt-leaf Senna	Fabaceae	subshrub	New Tropics	unknown
S. occidentalis	Coffee Senna	Fabaceae	annual	New Tropics	unknown
S. pendula	Christmas Senna	Fabaceae	shrub	South America	<1930s
Sesbania exaltata	Sesbania	Fabaceae	subshrub	se USA	unknown
S. punicea	Purple Rattle-bush	Fabaceae	subshrub	South America	unknown
Setaria faberi	Giant Foxtail	Poaceae	annual	East Asia	1920s
S. italica	Italian Foxtail	Poaceae	annual	China	unknown
S. glauca	Yellow Bristle Grass	Poaceae	annual	Old World	unknown
S. viridis	Green Bristle Grass	Poaceae	annual	Old World	unknown
Silybum marianum	Blessed Thistle	Poaceae	annual/biennial	Eurasia	colonial time?
Sinapis arvensis	Wild Mustard	Brassicaceae	annual	Eurasia	colonial time?
Solanum carolinense	Carolina Horse-nettle	Solanaceae	perennial	se USA，Mexico	not apply
S. diphyllum	Two-leaf Nightshade	Solanaceae	subshrub/shrub	Central America	<1960s
S. elaegnifolium	Silver-leaf Nightshade	Solanaceae	perennial	sw USA，Mexico	not apply
S. jamaicense	Jamaica Nightshade	Solanaceae	perennial vine	Central America	<1930w
S. rostratum	Buffalo Bur	Solanaceae	annual	midwest North America	not apply
S. tampicense	Scrambling Nightshade	Solanaceae	tree/shrub vine	Central America	1970s
S. torvum	Turkey Berry	Solanaceae	subshrub/shrub/tree	Central America	1890s
S. viarum	Tropical Soda Apple	Solanaceae	shrub	South America	1988
Sonchus arvensis	Field Sowthistle	Asteraceae	perennial	Eurasia	1814
S. asper	Spiny Sowthistle	Asteraceae	annual	Europe	colonial time?
Sorbus aucuparia	European Mountain Ash	Rosaceae	tree	Europe，Mediterranean	colonial time?
Sorphum almum	Sorphum Almun	Poaceae	annual to pennial	South America	colonial time?
S. halepense	Johnson Grass	Poaceae	perennial	Mediterranean	1840s
Sparganium erectum	Exotic Bur Reed	Sparganiaceae	perennial aquatic	North Temperate	not apply
Spartina alterniflora	Smooth Cordgrass	Poaceae	perennial	e，se North America	not apply
S. patens	Salt-Meadow Cardgrass	Poaceae	perennial	e，se North America	not apply
Spartium junceum	Spanish Broom	Fabaceae	shrub	Mediterranean	1848
Spiraea japonica	Japanese Spiraea	Rosaceae	shrub	East Asia	1870
Stachys floridana	Florida Hedge-nettle	Lamiaceae	perennial	se USA	not apply
Stellaria media	Common Starwort	Caryophyllaceae	annual	Eurasia	colonial time?
Striga asiatica	Asiatic Witchweed	Scrophulariaceae	semi-parasitic annual	Old World	<1955
S. gesnerioides	Cowpea Witchweed	Scrophulariaceae	semi-parasitic perennial	Africa，Asia	1979
Syngonium podophyllum	American Evergreen	Araceae	perennial vine	central & south America	unknown
Syringa vulgaris	Lilac	Oleaceae	shrub	Europe	colonial time?
Syzygium cumini	Java Plum	Myrtaceae	tree	s & se Asia	1911
S. jambos	Rose Apple	Myrtaceae	tree	s & se Asia	1825
Taeniatherum caput-medusae	Medusahead	Poaceae	annual	Europe	1880s
Tagetes minuta	Wild Marigold	Asteraceae	annual	South America	colonial time?

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
w/seed	3	agriculture，desert，urban	AL，CA，CT，DC，DC，DE，FL，GA，LA，MA，MD，ME，MS，NC，NH，
w/seed	5	pastures，urban，wild	CA.
w/seed	5	agriculture，urban，pastures	AZ，CA，CO，ID，OR，UT，WA.
horticulture，w/boat	4	aquatic，wetland，urban	AL，AR，FL，GA，LA，MA，MD，MS，NM，NY，OK，PR，SC，TX.
w/plant，w/boat	2	aquatic，wetland，urban	AL，AZ，CA，FL，GA，HI，LA，MS，NC，SC，TX.
w/people	5	horticulture，urban，wild	FL，PR，VI.
oil crops，horticulture	4	horticulture，urban，wild	AL，AR，CA，FL，GA，LA，MS，NC，SC，TX.
horticulture	5	shoreline，urban，wetland	FL，HI.
horticulture	5	horticulture，forest，urban	FL，HI，PR，VI.
horticulture	4	agriculture，urban，wetland	CA，FL，HI，PR，TX，VI.
w/people?	5	desert，urban，wild	AZ，CA，NM，NV，UT.
w/people?	5	agriculture，desert，urban	AZ，CA，NM，NV，TX，UT.
medicine? w/people?	3	agriculture，urban，pastures	CA，ID，IL，IN，MA，ME，MI，MT，NJ，NY，OR，PA，WA，WY；BC，MB，
w/people? w/seeds?	4	urban，pastures，agriculture	HI.
w/people? w/seeds?	3	urban，agriculture，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
medicine	3	horticulture，urban，wild	AL，AR，CA，DE，FL，GA，HI，IL，IN，KS，KY，LA，MA，MD，MO，MS，
medicine	5	horticulture，urban，wild	AL，AR，FL，GA，HI，IA，IL，IN，KS，LA，MA，MO，MS，NC，OK，SC，
horticulture	5	horticulture，urban，wild	AZ，CA，FL，HI，PR，TX.
horticulture	5	horticulture，urban，wetland	AL，AR，AZ，CA，FL，GA，IL，KS，KY，LA，MA，MD，MO，MS，NC，
horticulture	4	aqautic，wetland，horticulture	AL，AR，CA，FL，GA，LA，MS，NC，SC，TX，VA.
w/seeds	2	agriculture，urban，wild	AL，AR，AZ，CA，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，
w/people? w/seeds? Crops?	3	agriculture，urban，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,IL,IN,KS,KY,LA,MA,MD,ME,
w/people? w/seeds? Crops?	3	agriculture，urban，wild	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,ME,MI,
w/people? w/seeds? Crops?	3	agriculture，urban，wild	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
medicine，w/people?	3	pasture，agriculture，urban	AL，AR，AZ，CA，CO，CT，DC，GA，IN，LA，MA，MD，MI，MS，NH，NM，
w/people? w/seeds?	3	agriculture，urban，wild	AK,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
not apply	3	urban，agriculture，horticulture	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，LA，
horticulture	5	horticulture，urban，agriculture	FL，TX.
not apply	3	urban，agriculture，pastures	AL，AR，AZ，CA，CO，FL，GA，HI，ID，IL，IN，KS，KY，LA，MD，MO，
w/seeds? w/people?	5	urban，agriculture，pastures	FL，PR.
not apply	3	urban，agriculture，pastures	AK,AL,AR,AZ,CA,CO,CT,DC,DE,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
unknown	4	wetland，forest，wild	FL.
horticulture	4	agriculture，urban，wild	AL，FL，HI，MD，PR，VI.
w/people，w/seeds，w/forage	2	agricutlure，pastures，wetland	AL，FL，GA，LA，MS，NC，PA，SC，TN.
w/people? w/seeds?	3	urban，horticulture，agriculture	AK,CA,CO,CT,DC,DE,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,MN,MO,
w/people? w/seeds?	3	urban，horticulture，agriculture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
horticulture	3	horticulture，urban，forest	AK，CA，CT，DC，IA，ID，IL，IN，MA，MD，ME，MI，MN，MT，ND，NH，
w/people? w/seeds? Crops?	5	agriculture，pasture，urban	AL，FL，IL，LA，MS，OR，TX，WI.
forage	2	agriculture，urban，wetland	AL，AR，AZ，CA，CO，CT，DC，DE，FL，GA，HI，IA，ID，IL，IN，KS，KY，
not apply	3	aquatic，wetland，urban	AZ，CA，CO，CT，DC，DE，IA，ID，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，
not apply	4	aquatic，wetland，shoreland	AL，CA，CT，DE，FL，GA，LA，MA，MD，ME，MS，NC，NH，NJ，NY，OR，
not apply	5	aqautic，wetland，shoreland	AL，CA，CT，DE，FL，GA，LA，MA，MD，ME，MI，MS，NC，NH，NJ，NY，
horticulture	5	urban，horticulture，agriculture	CA，HI，OR，WA.
horticulture	3	horticulture，urban，wild	CT，DE，GA，IL，IN，KY，MA，MD，ME，MI，NC，NH，NY，OH，PA，RI，
not apply	5	horticulture，agriculture，urban	AL，AR，CA，FL，GA，LA，MS，NC，SC，TN，TX，VA.
w/people? w/seeds? Herbs?	3	agriculture，horticulture，urban	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
w/people?	4	agricutlure，pastures，urban	NC，SC.
w/people?	4	agriculture，pasture，urban	FL.
horticulture	5	horticulture，urban，wetland	FL，PR，VI.
horticulture	3	horticulture，urban，forest	AR，CO，CT，DC，IA，IL，IN，KS，KY，MA，MD，ME，MI，MN，MO，NH，
horticulture，fruit	5	horticulture，urban，forest	FL，HI.
fruit	5	forest，urban，wild	FL，HI，PR，VI.
w/people? w/seeds?	2	pastures，agriculture，wild	AL,AK,ZA,AR,CA,CO,CT,DE,FL,GA,HI,ID,IL,IN,IA,KS,KY,LA,ME,MD,MA,MI,
food	5	urban，horticulture，agriculture	AL，CA，CT，FL，GA，HI，MA，MD，NC，PA，SC，VA；ON.

NJ, NM, NY, OR, PA, RI, SC, TX, VA, VT, WA; NB, NF, NS, ON, PE, QC.

NB, NF, NS, ON, PE, QC.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
NC, NE, NJ, NY, OK, PA, SC, TN, TX, VA, WI, WV, PR, VI.
TN, TX, VA, PR, VI.

NY, OK, PA, SC, TN, TX, VA; ON.

MD, ME, MI, MN, MO, MS, NC, NE, NH, NJ, NY, OH, OK, PA, RI, SC, SD, TN, VA, VT, WI, WV; ON, QC.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NS,ON,QC.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
NV, NY, OH, OK, OR, PA, TN, TX, VA, WA, WV; AB, BC, NB, NS, ON, QC, SK.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MA, MD, ME, MI, MN, MO, MS, NC, NE, NH, NJ, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV; ON, QC.

MS, NC, NE, NM, NV, OK, OR, SC, TN, TX, UT, WA, PR.

MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,ON,PE,QC,SK.

MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OR,PA,RI,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,ON,PE,QC,SK,YT.
NJ, NY, OH, OR, PA, RI, SC, UT, VT, WA, WI, WV, WY; AB, BC, NB, NF, NS, ON, PE, QC, SK.

LA, MA, MD, MI, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY, PR; ON.
MT, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SD, UT, VA, VT, WA, WI, WV, WY; AB, BC, MB, NB, NF, NS, NT, ON, PE, QC, SK.
RI, SC, TX, VA, WA; NB, NF, NS, PE, QC.
OR, PA, RI, SC, TX, VA, WA; BC, NB, NF, NS, ON, PE, QC, PR, VI.

SC, TN, VA, WV; NS, ON.

MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY; AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.

NJ, NY, OH, OR, PA, RI, SD, TN, UT, VA, VT, WI, WV; BC, NB, NF, NS, ON, PE, QC, SK.

MN,MS,MO,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WV,WI,WY,PR,VI; AB,BC,MB,NB,NF,NT,NS,NU,ON,PE,PQ,SK,YT.

Continuous table

Scientific name	English name	Family	Habit	Native/Origin	Introduced time
Tamarix aphylla	Athel Tamarisk	Tamaricaceae	shrub/tree	Old World Temperate	1868
Tamarix chinensis	Chinese Tamarix	Tamaricaceae	shrub/tree	Asia	1800s
T. gallica	French Tamarix	Tamaricaceae	shrub/tree	Europe，Africa	1800s
T. parviflora	Small-flower Tamarisk	Tamaricaceae	shrub/tree	Europe，Africa	1800s
T. ramosissima	Saltcedar	Tamaricaceae	shrub/tree	Eurasia	1883
Tanacetum vulgare	Common Tansy	Asteraceae	perennial	Eurasia	colonial time?
Taraxacum officinale	Common Dandelion	Asteraceae	perennial	Eurasia	colonial time?
Taxaxacum laevigatum	Rock Dandelion	Asteraceae	perennial	Eurasia	colonial time?
Tecoma capensis	Cape Honeysuckle	Bigoniaceae	shrub vine	South Africa	?
Terminalia catappa	Indian Almond	Combretaceae	tree	Tropical Asia	colonial time?
T. muelleri	Australian Almond	Combretaceae	tree	Australia	?
Thespesia populnea	Seaside Mahoe	Malvaceae	tree	Old World Tropics	＜1928
Thlaspi arvense	Field Pennycress	Brassicaceae	annual	Eurasia	colonial time?
Torilis arvensis	Field Hedge-parsley	Apiaceae	annual	Old World	?
Tradescantia fluminensis	Small-Leaf Spiderwort	Commelinaceae	perennial	South America	＜1933
T. spathacea	Boat-Lily	Commelinaceae	perennial	South & Central America	?
Tragopogon dubius	Meadow Goat′s-Beard	Asteraceae	annual/biennial	Europe	?
Trapa natans	Water Chestnut	Trapaceae	annual aquatic	Old World	1859
Tribulus cistoides	Jamaica Feverplant	Zygophyllaceae	perennial vine	Old Tropics	?
T. terrestris	Puncturevine	Zygophyllaceae	annual	Eurasia	?
Tridax procumbens	Coatbottons	Asteraceae	perennial	Tropical America	?
Tripleurospermum perforata	Scentless Mayweed	Asteraceae	annual	Europe	?
Tussilago farfara	Coltsfoot	Asteraceae	perennial	Old World	colonial time?
Ulex europaeus	Gorse	Fabaceae	shrub	Europe	＜1894
Ulmus pumila	Siberian Elm	Elmaceae	tree	Eas Asia	1860s
Urena lobata	Caesar Weed	Malvaceae	perennial	Tropical Asia	?
Urochloa maxima	Guineagrass	Poaceae	perennial	Africa	?
U. mutica	Para Grass	Poaceae	perennial	Africa	＜1870
U. panicoides	Liverseed Grass	Poaceae	annual	South Africa	?
Urtica dioica	Stinging Nettle	Urticaceae	perennial	Eurasia	colonial time?
U. urens	Burning Nettle	Urticaceae	annual	Europe	colonial time?
Verbascum thapsus	Common Mullein	Scrophulariaceae	biennial	Eurasia	colonial time
Verbena honariensis	South American Vervain	Verbenaceae	subshrub	South America	?
V. brasiliensis	Brazilian Vervain	Verbenaceae	annual	South America	?
Veronica arvensis	Corn Speedwell	Scrophulariaceae	annual	Eurasia	colonial time?
V. hederifolia	Ivy-Leaf Speedwell	Scrophulariaceae	annual	Old World	?
V. persica	Persian Speedwell	Scrophulariaceae	annual	Eurasia	colonial time?
Viburnum lantana	Wayfaring Tree	Caprifoliaceae	shrub/tree	Europe	colonial time?
V. opulus	Guelder Rose	Caprifoliaceae	shrub/tree	north temperate	not apply
Vernicia fordii	Tung Oil	Euphorbiaceae	tree	East Asia	1905
Vicia sativa	Spring Vetch	Fabaceae	annual vine	Eurasia	colonial time?
Vinca major	Bigleaf Periwinkle	Apocynaceae	perennial vine	mediterrian	1700s
V. minor	Periwinkle	Apocynaceae	perennial vine	Europe	1700s
Vitex rotundifolia	Kolokolo Kahakai	Verbenaceae	shrub	Tropical Asia	1980s
Vetiveria zizanioides	Khuskhus Vetiver	Poaceae	perennial	Old Tropic	?
Wedelia trilobata	Bay Biscayne Wedelia	Asteraceae	perennial vine	Central America	＜1970s
Wisteria floribunda	Japanese Wisteria	Fabaceae	woody vine	Japan	1830
W. sinensis	Chinese Wisteria	Fabaceae	woody vine	China	1816
Xanthium spinosum	Spiny Cocklebur	Asteraceae	annual	South America	＜1870
X. strumarium	Rough Cocklebur	Asteraceae	annual	New World	not apply
Xanthosoma sagittifolium	Yautia Blanca	Asteraceae	perennial	Tropical America	colonial time
Zostera japonica	Japanese Eelgrass	Zosteraceae	perennial	East Asia	1957
Zygophyllum fabago	Syrian Bean Caper	Zygophyllaceae	perennial	Mediterranean，c Asia	＜1910

USA：AK：Alaska，AL：Alabama，AR：Arkansas，AZ：Arizona，CA：California，CO：Colorado，CT：Connecticut，DC：Washington DC，DE：Delaware，NE：Nebraska，NH：New Hampshire，NJ：New Jersey，NM：New Mexico，NV：Nevada，NY：New York，OH：Ohio，OK：Oklahoma，OR：Oregon，**Canada**：AB：Alberta，BC：British Columbia，MB：Manitoba，NB：New Brunswick，NF：Newfoundland，NS：Nova Scotia，NT：Northwest Territories，

Invasive Passway	Invasive Grade	Invasive Habitat	Distribution
invironmental industry，horticulture	3	wetland，agriculture，urban	AZ，CA，NV，PR，TX，UT.
invironmental industry，horticulture	2	wetland，agriculture，urban	AR，AZ，CA，CO，MT，NC，NM，NV，OH，OK，OR，TX，UT，WY.
invironmental industry，horticulture	2	wetland，agriculture，urban	CA，GA，LA，NC，NM，PR，SC，TX，VA，WA，PR.
invironmental industry，horticulture	2	wetland，agriculture，urban	AZ，CA，CO，CT，DE，FL，ID，IL，KS，KY，LA，MA，MI，MO，MS，MT，
invironmental industry，horticulture	2	wetland，agriculture，urban	AR，AZ，CA，CO，GA，KS，LA，MS，NC，ND，NE，NM，NV，OK，SC，SD，
medicine，horticulture	3	pastures，agriculture，wetland	AK,AR,AZ,CA,CO,CT,DC,DE,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/people? w/seeds?	3	pastures，agriculture，horticulture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/people? w/seeds?	3	pastures，agriculture，horticulture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,MA,MD,ME,
horticulture	5	horticulture，urban，wild	FL，PR.
horticulture	5	horticulture，urban，forest	FL，HI，PR，VI.
horticulture	5	horticulture，urban，forest	FL，PR.
horticulture	5	horticulture，shoreland，urban	FL，HI，PR，VI.
w/people? w/seeds?	2	agriculture，pastures，urban	AK,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME，MI，MN，
w/people? w/seeds?	3	agriculture，pastures，urban	AL，AR，CA，DC，GA，IA，ID，IN，KS，KY，LA，MD，MO，MS，NC，NE，
horticulture	4	forest，wetland，urban	AL，CA，FL，GA，KY，LA.
horticulture	5	forest，urban，horticulture	FL，HI，LA，PR，VI.
w/people? w/seeds?	3	urban，pastures，wild	AK,AR,AZ,CA,CO,CT,DC,DE,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,MN,
horticulture? Food?	4	aquatic，wetland	DC，DE，MA，MD，NJ，NY，PA，VA，VT；QC.
horticulture?	5	shoreland，wetland，urban	FL，GA，HI，LA，PR，TX，VI.
w/forage	3	urban，pastures，wild	AR，AZ，CA，CO，FL，HI，IA，ID，IL，IN，KS，KY，LA，MD，MI，MN，
?	5	urban，pastures，wild	FL，HI，PR，VI.
horticulture? w/seeds? w/peoples?	2	agriculture，pastures，urban	AK，AL，CO，CT，IA，ID，IL，KS，KY，MA，MD，ME，MI，MN，MO，MT，
medicine	3	agriculture，forest，wild	CT，DC，DE，IL，IN，KY，MA，MD，ME，MI，MN，NC，NH，NJ，NY，OH，
horticulture，environmental industry	5	agriculture，forest，pastures	CA，HI，MA，NY，OR，PA，VA，WA，WV；BC.
horticulture，forest	3	urban，horticulture，pastures	AL，AR，AZ，CA，CO，CT，FL，GA，FL，IA，ID，IL，IN，KS，KY，LA，MA，MD，
horticulture	5	urban，horticulture，pastures	FL，HI，LA，PR，VI.
forage	5	agriculture，urban，wetland	AL，AZ，CA，FL，GA，HI，LA，OK，PR，TX，VI.
forage	5	wetland，agriculture，urban	AL，FL，HI，MD，OR，PR，SC，TX，VI.
forage	5	agriculture，urban，wild	AZ，MD，NM，TX.
w/seeds? w/people?	3	urban，agriculture，wild	AK,AL,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,MI,
w/seeds? w/people?	3	urban，agriculture，wild	AK，AL，AZ，CA，CT，FL，GA，HI，IA，IL，MA，MD，ME，MI，MO，NH，
medicine	3	urban，forest，pastures	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
horticulture	4	agriculture，forest，pastures	AL，AR，AZ，CA，FL，GA，HI，LA，MA，MS，NC，NJ，NY，OK，OR，SC，
horticulture	4	urban，pastures，wetland	AL，AR，CA，FL，GA，HI，KY，LA，MO，MS，NC，OK，OR，SC，TN，TX，VA.
w/people? w/seeds?	3	urban，agriculture，horticulture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA，MD，
w/people? w/seeds?	3	horticulture，urban，agriculture	AL，AR，CA，CT，DC，DE，FL，GA，IL，IN，KY，LA，MD，MO，NC，NE，
w/people? w/seeds?	3	urban，agriculture，horticulture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
horticulture	5	horticulture，urban，forest	CO，CT，IA，IL，IN，MA，MD，ME，MI，MT，NY，OH，PA，VT，WI，WY；
n/a	5	horticulture，urban，forest	CT，IA，ID，IL，IN，KY，MA，MD，ME，MI，MN，MO，MT，ND，NE，NH，
crops	5	wild，urban，forest	AL，CA，FL，GA，LA，MS，PR.
food	3	urban，agriculture，horticulture	AK,AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,
horticulture	3	forest，wetland，urban	AL，AR，AZ，CA，GA，ID，IL，KY，LA，MA，MD，MS，NC，NY，OH，OR，
horticulture	3	forest，wetland，urban	AL，AR，AZ，CT，DC，DE，FL，GA，IA，IL，IN，KS，KY，LA，MA，MD，ME，
horticulture	5	shoreland，urban	AL，HI，NC，SC.
crops，invironmental industry	4	wetland，urban，pastures	LA，PR.
horticulture	5	agriculture，shoreland，forest	FL，HI，LA，PR，VI.
horticulture	3	urban，forest，wetland	AL，AR，DC，FL，GA，IL，KY，LA，MA，MD，ME，MS，NC，NH，NJ，OH，
horticulture	3	urban，forest，wetland	AL，AR，CT，DC，DE，FL，GA，HI，IL，KY，LA，MA，MD，MO，MI，MS，
w/animals，w/seeds	2	agriculture，urban，pastures，wetland，animals	AL，AZ，CA，CO，CT，DC，DE，FL，GA，IA，ID，IL，IN，KS，KY，MA，
not apply	3	wetland，urban，pastures	AL,AR,AZ,CA,CO,CT,DC,DE,FL,GA,HI,IA,ID,IL,IN,KS,KY,LA,MA,MD,ME,
food	5	wetland，urban，forest	FL，PR，TX，VI.
w/boat	5	shoreland，marine，estuarine	OR，WA，BC.
w/seeds	4	agriculture，urban，wetland	CA，CO，ID，KS，MT，NM，NV，NY，PA，TX，WA.

FL：Florida，GA：Georgia，HI：Hawaii，IA：Iowa，ID：Idaho，IL：Illinois，IN：Indiana，KS：Kansas，KY：Kentucky，LA：Lousiana，MA：Massachusetts，PA：Pennsylvania，PR：Puerto Rico；RI：Rhode Island，SC：South Carolina，SD：South Dakota，TN：Tennessee，TX：Texas，UT：Utah，VA：Virginia，NU：Nunavut，ON：Ontario，QC：Quebec，PE：Prince Edward Island，SK：Saskatchenwan，YT：Yukon.

NC，NJ，NM，NV，OK，OR，PA，TN，TX，UT，VA，WA.
TX，VA.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SD,TN,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,NU,ON,PE,QC,SK,YT.
MI,MN,MO,MT,NC,ND,NE,NH,NJ,NM,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NS,NT,ON,QC,SK,YT.

MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
NJ，OH，OK，OR，PA，SC，TN，TX，UT，VA，WA，WV；BC.

MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,ON,QC,SK,YT.

MO，MS，MT，NC，ND，NE，NJ，NM，NV，NY，OH，OK，OR，PA，SC，SD，TN，TX，UT，VA，WA，WI，WY；BC，ON.

ND，NE，NH,NV，NY，OR，PA，SD，UT，WA，WI，WY；AB，BC，MB，NB，NF，NS，NT，NU，ON，PE，QC，SK，YT.
PA，RI，TN，VA，VT，WA，WI，WV；BC，NB，NF，NS，ON，PE，QC.

MI，MN，MO，MT，NC，ND，NE，NH，NM，NV，NY，OH，OK，OR，PA，RI，SD，TN，TX，UT，VA，VT，WA，WI，WV，WY；BC，MB，NB，ON，QC，SK.

MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,NT,ON,PE,QC,SK,YT.
NJ，NM，NV，NY，OK，OR，PA，SC，TX，VA，VT，WA，WI；AB，BC，MB，NB，NF，NS，ON，PE，QC，SK，YT.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
TN，TX，VA；ON，QC.

ME,MI,MN,MO,MS,MT,NC,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；BC,NB,NF,NS,ON,QC,YT.
NJ，NY，OH，OK，OR，PA，SC，SD，TN，UT，VA，WA，WV；BC，ON.
MI,MN,MO,MS,MT,NC,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NF,NS,ON,PE,QC,SK.
NB，ON，QC.
NJ，NM，NY，OH，PA，RI，SD，TN，VA，VT，WA，WI，WV，WY；AB，BC，MB，NB，NF，NS，ON，PE，QC，SK.

ME,MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,VA,VT,WA,WI,WV,WY；BC,MB,NB,NF,NS,ON,PE,QC,YT.
PA，SC，TN，TX，UT，VA，WA；BC.
MI，MN，MO，MS，MT，NC，NE，NH，NJ，NY，OH，OR，PA，RI，SC，TN，TX，UT，VA，VT，WA，WI，WV；BC，NB，NS，ON，QC.

PA，SC，TN，TX，VA.
NC，NY，PA，SC，TN，TX，VA，VT，WV.
MD，ME，MI，MO,MS，MT，NC，NE，NH，NJ，NM，NV，NY，OH，OR，PA，RI，SC，TN，TX，UT，VA，WA，WV；NB，ON，QC，SK.
MI,MN,MO,MS,MT,NC,ND,NE,NH,NJ,NM,NV,NY,OH,OK,OR,PA,RI,SC,SD,TN,TX,UT,VA,VT,WA,WI,WV,WY；AB,BC,MB,NB,NS,ON,PE,QC,SK.

MD：Maryland，ME：Maine，MI：Michigan，MN：Minnesota，MO：Missouri，MS：Mississippi，MT：Montana，NC：North Carolina，ND：North Dakota，
VI：Virgin Islands；VT：Vermont，WA：Washington，WI：Wisconsin，WV：West Virginia，WY：Wyoming.